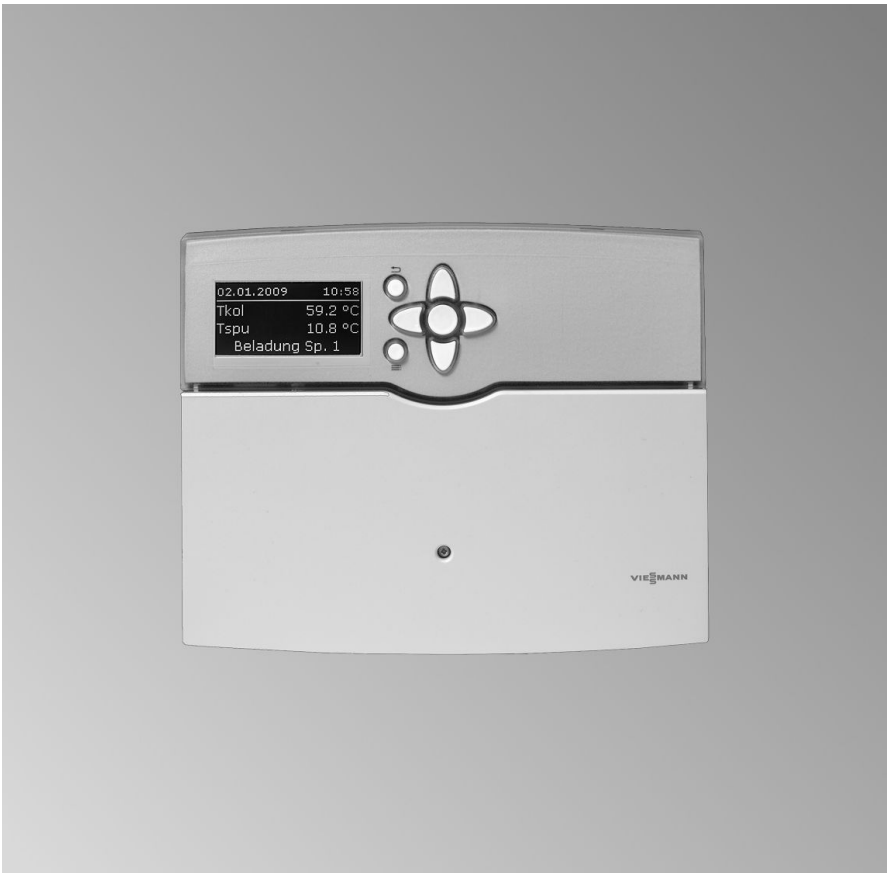
Installation and service instructions

for contractors

Electronic temperature differential control unit
Vitosolic 200
Type SD4

For applicability, see the last page

VITOSOLIC 200



5414 620 GB 6/2009

Please keep safe.

Safety instructions

Please follow these safety instructions closely to prevent accidents and material losses.

Safety instructions explained

Danger
This symbol warns against the risk of injury.

Please note
This symbol warns against the risk of material losses and environmental pollution.

Note
Details identified by the word "Note" contain additional information.

Target group

These instructions are exclusively designed for qualified personnel.
- Work on electrical equipment must only be carried out by a qualified electrician.
- The system must be commissioned by the system installer or a qualified person authorised by the installer.

Regulations

Observe the following when working on this system
- all legal instructions regarding the prevention of accidents,
- all legal instructions regarding environmental protection,
- the Code of Practice of relevant trade associations.
- all current safety regulations as defined by DIN, EN, DVGW, VDE and all locally applicable standards

Working on the system

- Isolate the system from the power supply and check that it is no longer 'live', e.g. by removing a separate fuse or by means of a main isolator.
- Safeguard the system against unauthorised reconnection.

Please note
Electronic modules can be damaged by electrostatic discharges.
Touch earthed objects, such as heating or water pipes, to discharge static loads.

Repair work

Please note
Repairing components that fulfil a safety function can compromise the safe operation of your heating system.
Replace faulty components only with original Viessmann spare parts.

5414 620 GB

Safety instructions (cont.)

Ancillary components, spare and wearing parts

Please note
Spare and wearing parts that have not been tested together with the heating system can compromise its function. Installing non-authorised components and non-approved modifications or conversions can compromise safety and may invalidate our warranty.
For replacements, use only original spare parts supplied or approved by Viessmann.

Index

Installation instructions

System examples

General information ... 7
Overview of system examples ... 8
System example 1 ... 9
System example 2 ... 14
System example 3 ... 21
System example 4 ... 26
System example 5 ... 35
System example 6 ... 41
System example 7 ... 48
System example 8 ... 54
System example 9 ... 59

Installation sequence

Fitting the solar control unit ... 67
Overview of electrical connections ... 68
Pumps ... 69
High limit safety cut-out ... 71
Central fault message facility ... 73
Sensors ... 74
Solar cell ... 76
Power supply ... 77

Service instructions

Commissioning

Switching the power ON ... 79
Navigation through the menu ... 79
Entering the operator code ... 80
Language selection ... 81
Setting the time and date ... 82
Adjusting the display ... 82
Setting parameters ... 82
Carrying out a relay test (testing actuators) ... 84

Service scans

Scanning temperatures and operating conditions ... 85
Scanning the statement ... 85
Scanning the heat yield and temperatures ... 86
Scanning messages ... 87

5414 620 GB

Index

Troubleshooting
Fault messages ... 88
Checking sensors ... 92
Checking relays (actuators) ... 92
Changing the fuse ... 93

Function description
Systems ... 94
Function blocks ... 112
Cylinder temperature control ... 116
Cylinder temperature limit ... 117
Cylinder priority control ... 117
Collector emergency stop ... 118
Bypass ... 118
External heat exchanger ... 122
Cooling function ... 126
Interval function ... 127
Collector cooling function ... 128
Reverse cooling function ... 129
Frost protection function ... 129
Target temperature ... 130
Parallel relay ... 130
Booster suppression ... 131
Cylinder 2 (to 4) ON ... 134
Utilisation of excess heat ... 134
Minimum collector temperature limit ... 135
Cyclical heating ... 135
Additional function for DHW heating ... 136
Cylinder heating ... 138
Speed control ... 139
Central fault message — signalling relay ... 141
Heat statement ... 141
SD module ... 145
Relay kick ... 147

Parts list ... 148

Specification ... 149

Appendix
Menu structure overview ... 150
Overview of system parameters ... 151
PCBs ... 166

Index (cont.)

Certificates
Declaration of conformity..... 168

Keyword index..... 169

General information

Anti-scalding protection

Danger
Subject to system configuration, DHW temperatures above 60 °C can occur. DHW with temperatures in excess of 60 °C can result in scalding.

To limit the temperature to 60 °C, install mixing equipment, e.g. a thermostatically controlled mixing valve (accessory). Install a mixer tap as anti-scalding device at the draw-off point.

Equipotential bonding and lightning protection of the solar thermal system

Install an electrical conductor on the pipework system of the solar circuit in the lower part of the building in compliance with VDE or local regulations.

The connection of the collector system to a new or existing lightning protection system or the provision of local earthing must only be carried out by authorised trained personnel, who must take into account the conditions applicable on site.

Additional function for DHW heating

DVGW W 551 specifies that the total water content is maintained at 60 ºC and the pre-heat stages must be heated once every day to 60 ºC.

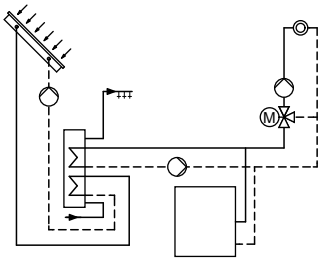
- Systems with a cylinder capacity, incl. preheat stage, in excess of 400 litres
- Systems with a line content in excess of 3 l from the DHW cylinder to the draw-off point

We recommend heating up in late afternoon. This ensures that the lower cylinder area or the pre-heating stage is cold again following the expected drawings (evenings and the following morning) and can subsequently be heated up again by solar energy.

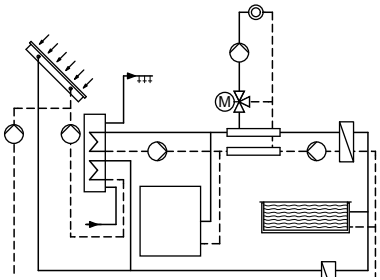
Note
For detached houses and two-family homes, this heat up is recommended, but not compulsory.

Overview of system examples

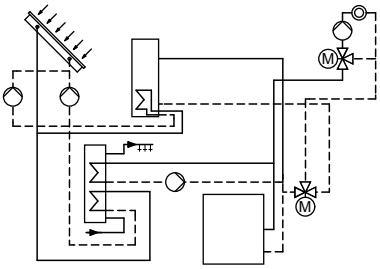
System example 1, see page 9.



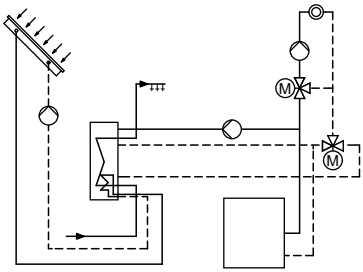
System example 4, see page 26.



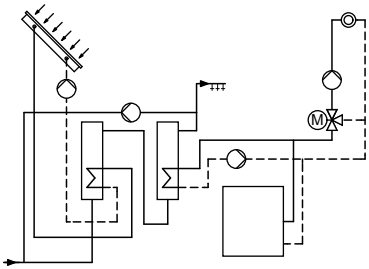
System example 2, see page 14.



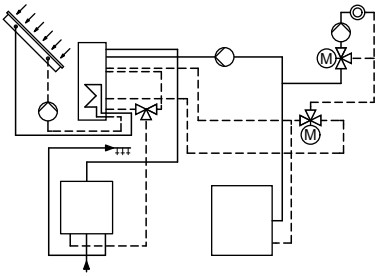
System example 5, see page 35.



System example 3, see page 21.

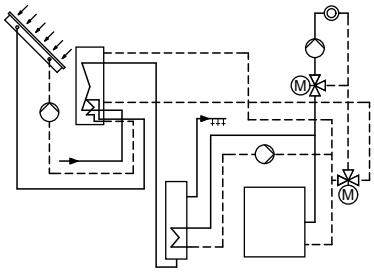


System example 6, see page 41.

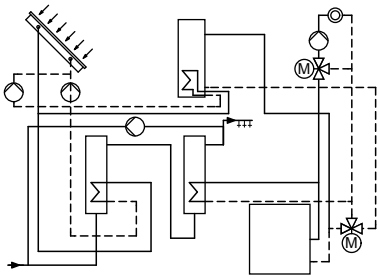


Overview of system examples (cont.)

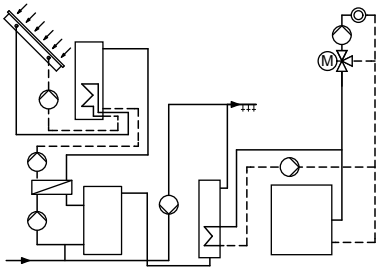
System example 7, see page 48.



System example 9, see page 59.



System example 8, see page 54.



System example 1

DHW heating with dual-mode DHW cylinder

Main components

- Viessmann solar collectors
- DHW cylinders Vitocell 100-B or Vitocell 300-B
- Vitosolic 200
- Solar-Divicon
- Wall mounted oil/gas boiler or oil/gas boiler

Function description

DHW heating with solar energy

Solar circuit pump R1 ㉝ starts and DHW cylinder ⑩ is heated up if the temperature differential between collector temperature sensor S1 ㉛ and cylinder temperature sensor S2 ⑪ exceeds the start temperature differential ΔT.
Solar circuit pump R1 ㉝ is stopped in accordance with the following criteria:

System example 1 (cont.)

- Actual temperature dropping below the stop temperature differential ΔToff
- Exceeding the electronic temperature limit of control unit ㊱ (max. 90 °C)
- Reaching the temperature selected at high limit safety cut-out ⑫ (if installed)

Additional function for DHW heating

The requirements for the additional function are achieved through circulation pump R5 ⑮.

Suppression of DHW cylinder reheating by the boiler

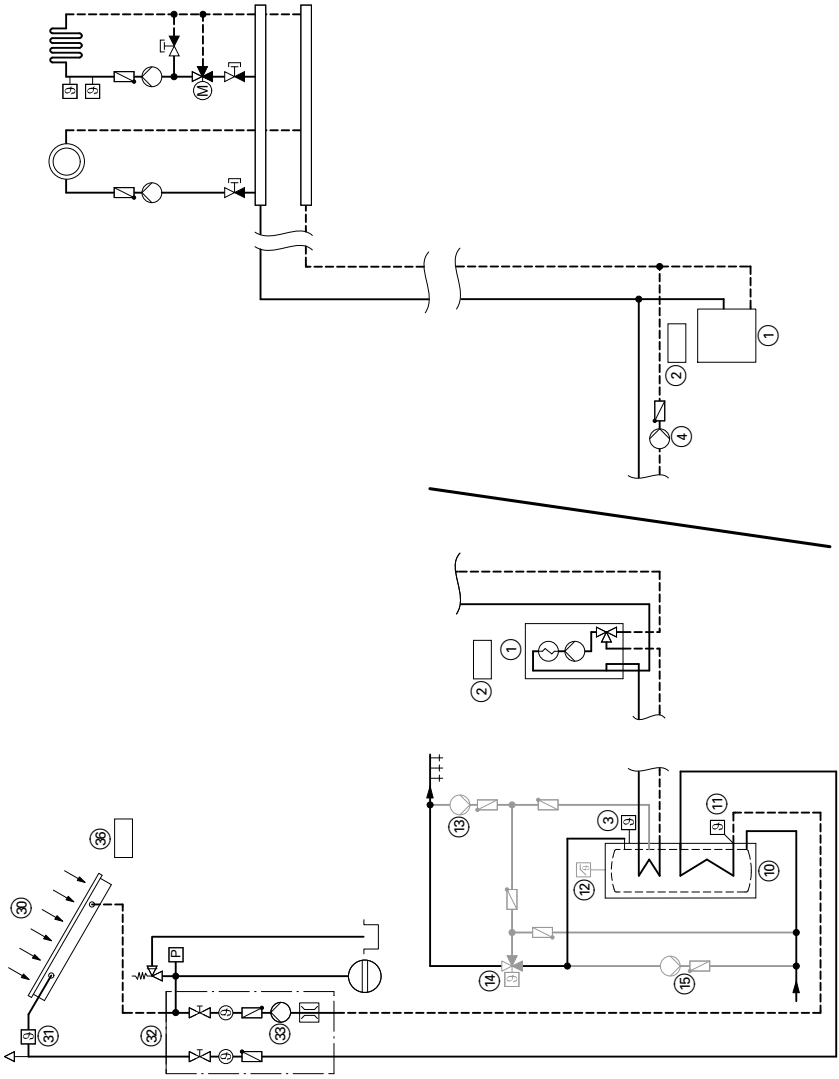
Coding address "67" in boiler control unit ② defaults a third set DHW temperature (setting range 10 to 95 °C). This value must be below the first set DHW temperature. DHW cylinder ⑩ will only be heated by boiler ① (solar circuit pump R1 ㉝ runs) if this set value cannot be achieved by the solar thermal system.

DHW heating without solar energy

The upper section of DHW cylinder ⑩ is heated by boiler ①. The cylinder thermostat with cylinder temperature sensor ③ of boiler control unit ② regulates circulation pump for cylinder heating ④.

System example 1 (cont.)

Hydraulic installation diagram



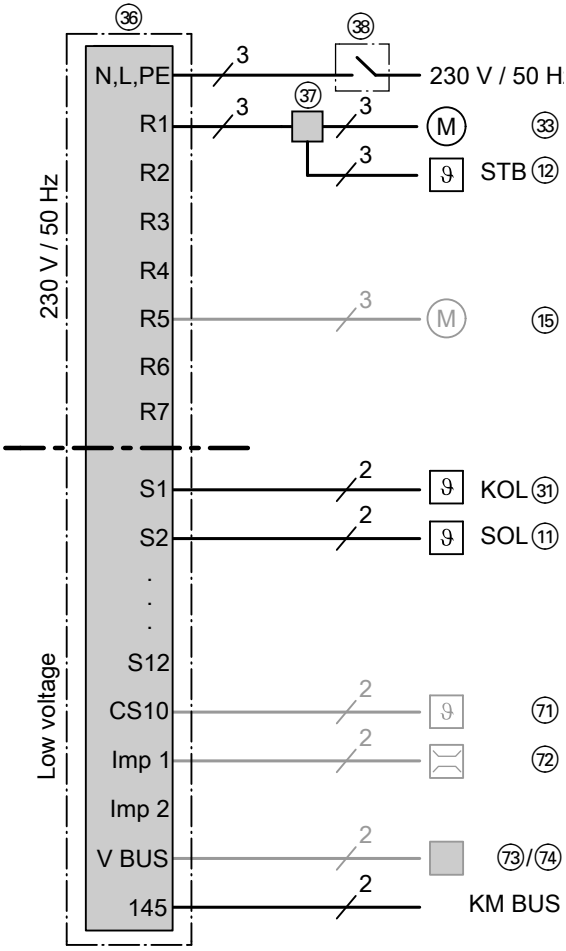
System example 1 (cont.)

Equipment required

Pos.	Description
①	**Wall mounted oil/gas boiler or oil/gas boiler**
	with
②	Boiler and heating circuit control unit
③	Cylinder temperature sensor
④	Circulation pump for cylinder heating
	(integrated for wall mounted oil/gas boiler)
⑩	Dual-mode DHW cylinder
⑪	Cylinder temperature sensor S2 (SOL)
⑫	High limit safety cut-out STB
⑬	DHW circulation pump
	(internal/external extension may be required for connecting a wall mounted oil/gas boiler)
⑭	Automatic thermostatic mixing valve
⑮	Circulation pump R5 (anti-stratification)
㉚	Solar collectors
㉛	Collector temperature sensor S1 (KOL)
㉜	Solar-Divicon
㉝	Solar circuit pump R1
㊱	Vitosolic 200
㊲	Junction box
㊳	ON/OFF switch (on site)
	Accessories
㉑	Solar cell
㉒	Heat meter extension kit (flow meter)
㉓	Large display
㉔	Datalogger
	For boiler and heating circuit accessories, see boiler scheme.

System example 1 (cont.)

Electrical installation diagram



System example 1 (cont.)

Required settings on the solar control unit

Main menu	Delivered condition	Setting
Operator code	0000	0200
Solar options		
■ System (see page 95)	1	1
Set solar values		
■ Tcylset (set cylinder temperature)	60 °C	
■ ΔTon (start temperature differential for solar circuit pump R1 ㉝)	8.0 K	
■ ΔToff (stop temperature differential for solar circuit pump R1 ㉝)	4.0 K	
System options		
■ Add. fct. (Additional function for DHW heating)	No	Yes (if a DHW circulation pump is connected)

For pump speed, see page 139.

System example 2

DHW heating with dual-mode DHW cylinder and central heating backup with heating water buffer cylinder

Main components

- Viessmann solar collectors
- DHW cylinders Vitocell 100-B or Vitocell 300-B
- Heating water buffer cylinder Vitocell 140-E or Vitocell 160-E
- Vitosolic 200
- Solar-Divicon
- Solar pump line
- Wall mounted oil/gas boiler or oil/gas boiler

Function description

DHW heating with solar energy

Solar circuit pump R1 ㉝ starts and DHW cylinder ⑩ is heated up if the temperature differential between collector temperature sensor S1 ㉛ and cylinder temperature sensor S2 ⑪ exceeds the start temperature differential ΔT.
Solar circuit pump R1 ㉝ is stopped in accordance with the following criteria:

System example 2 (cont.)

- Actual temperature dropping below the stop temperature differential ΔToff
- Exceeding the electronic temperature limit of control unit ㊱ (max. 90 °C)
- Reaching the temperature selected at high limit safety cut-out ⑫ (if installed)

Additional function for DHW heating

The requirements for the additional function are achieved through circulation pump R5 ⑮.

Suppression of DHW cylinder reheating by the boiler

Coding address "67" in boiler control unit ② defaults a third set DHW temperature (setting range 10 to 95 °C). This value must be below the first set DHW temperature. DHW cylinder ⑩ will only be heated by boiler ① (solar circuit pump R1 ㉝ runs) if this set value cannot be achieved by the solar thermal system.

DHW heating without solar energy

The upper section of DHW cylinder ⑩ is heated by boiler ①. The cylinder thermostat with cylinder temperature sensor ③ of boiler control unit ② regulates circulation pump for cylinder heating ④.

Central heating with solar energy

Circulation pump R4 ㉟ is started to heat heating water buffer cylinder ㊵ if the DHW cylinder ⑩ cannot be heated and the temperature differential between collector temperature sensor S1 ㉛ and buffer cylinder temperature sensor S4 ㊶ is greater than start temperature differential ΔT2on. The pump will stop if the actual temperature falls below the stop temperature differential ΔT2off or it reaches the set buffer cylinder temperature Tcyl2set.
The temperature inside heating water buffer cylinder ㊵ will be limited by the electronic temperature limiter or high limit safety cut-out ㊹ (if required).
Circulation pump R4 ㉟ is stopped roughly every 15 min for approx. 2 min, (times adjustable), to check whether the temperature at collector temperature sensor S1 ㉛ is high enough to change over to DHW cylinder heating ⑩.
Three-way diverter valve R6 ㊻ is switched to position "AB-A" and the heating return water is routed to boiler ① via heating water buffer cylinder ㊵, if the temperature differential between buffer cylinder temperature sensor S5 ㊸ and heating circuit return temperature sensor S6 ㊺ exceeds start temperature differential ΔT6on. If the temperature of the preheated return water is too low, boiler ① reheats the water to the required flow temperature. Three-way diverter valve R6 ㊻ is switched to position "AB-B" if the actual temperature falls below the stop temperature differential ΔT6off.

System example 2 (cont.)

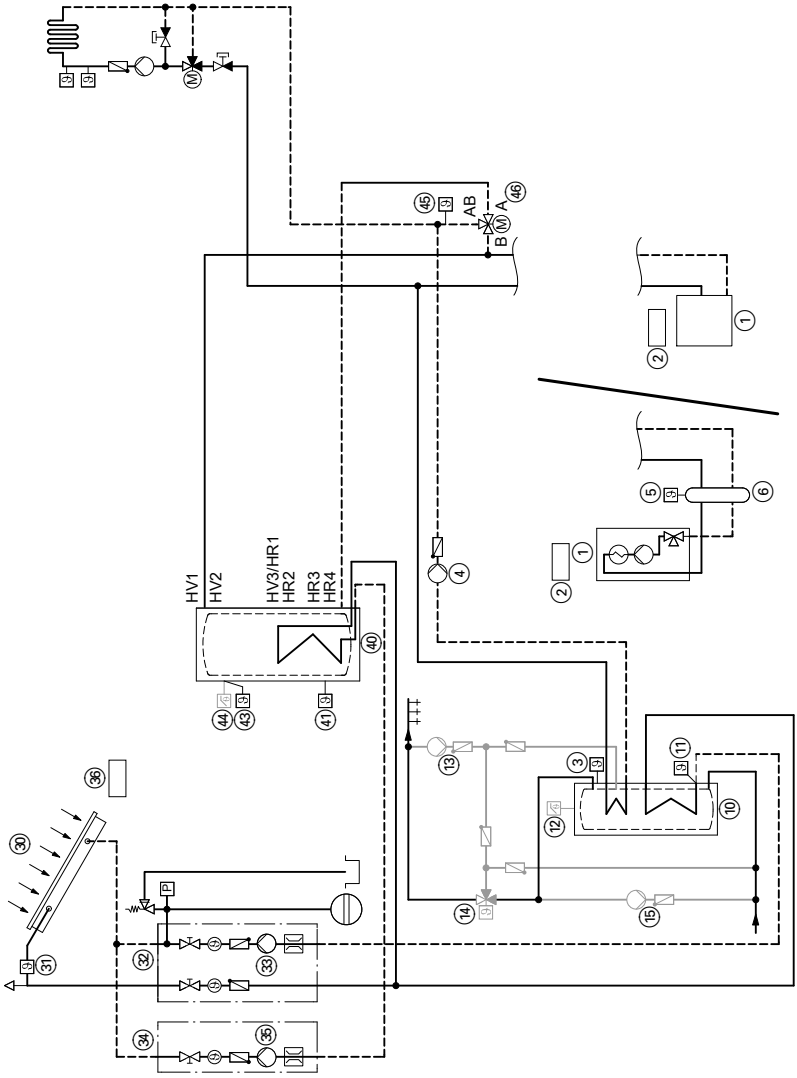
Central heating without solar energy

Three-way diverter valve R6 ㊻ remains at zero volt (position "AB-B") if the temperature differential between buffer cylinder temperature sensor S5 ㊸ and heating circuit return temperature sensor S6 ㊺ is less than temperature differential ΔT6off. There will be no flow through heating water buffer cylinder ㊵.

Boiler ① supplies the heating circuit with heat according to the heating curve set at boiler control unit ②.
A low loss header ⑥ with flow temperature sensor ⑤ is required in conjunction with a **wall mounted oil/gas boiler**.

System example 2 (cont.)

Hydraulic installation diagram



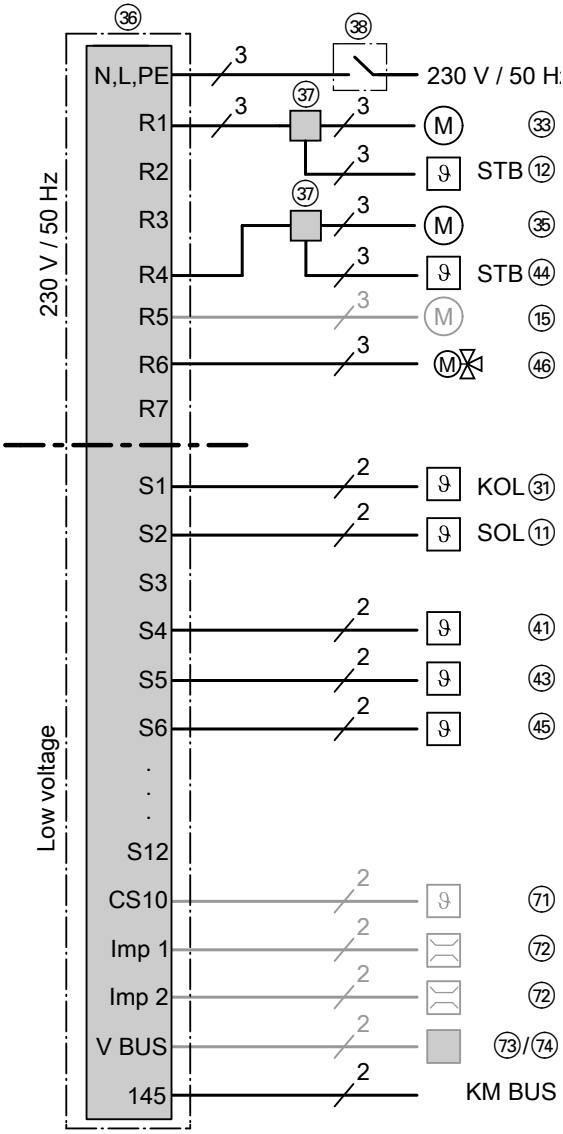
System example 2 (cont.)

Equipment required

Pos.	Description
①	**Wall mounted oil/gas boiler or oil/gas boiler**
	with
②	Boiler and heating circuit control unit
③	Cylinder temperature sensor
④	Circulation pump for cylinder heating
	(internal/external extension may be required for connecting a wall mounted oil/gas boiler)
	DHW heating with solar energy
⑩	Dual-mode DHW cylinder
⑪	Cylinder temperature sensor S2 (SOL)
⑫	High limit safety cut-out STB
⑬	DHW circulation pump
⑭	Automatic thermostatic mixing valve
⑮	Circulation pump R5 (anti-stratification)
㉚	Solar collectors
㉛	Collector temperature sensor S1 (KOL)
㉜	Solar-Divicon
㉝	Solar circuit pump R1
㊱	Vitosolic 200
㊲	Junction box
㊳	ON/OFF switch (on site)
	Central heating with solar energy
㊵	Heating water buffer cylinder
㉞	Solar pump line
㉟	Solar circuit pump for heating buffer cylinder R4
㊶	Temperature sensor S4 (heating water buffer cylinder), heating up
㊸	Temperature sensor S5 (heating water buffer cylinder), discharge
㊹	High limit safety cut-out STB
㊺	Return temperature sensor S6 (heating circuit)
㊻	Three-way diverter valve R6
	Accessories
⑦①	Solar cell
⑦②	Heat meter extension kit (flow meter)
⑦③	Large display
⑦④	Datalogger
	For boiler and heating circuit accessories, see boiler scheme.

System example 2 (cont.)

Electrical installation diagram



5414 620 GB

System example 2 (cont.)

Required settings on the solar control unit

Main menu	Delivered condition	Setting
Operator code	0000	0200
Solar options		
■ System (see page 99)	1	3
■ Hyd. Type (see page 99)	1	2
Set solar values		
■ Tcylset (set cylinder temperature)	60 °C	
■ Tcyl2set (set buffer cylinder temperature)	60 °C	
■ ΔTon (start temperature differential for solar circuit pump R1 ㉝)	8.0 K	
■ ΔToff (stop temperature differential for solar circuit pump R1 ㉝)	4.0 K	
■ ΔT2on (start temperature differential for solar circuit pump for buffer cylinder heating R4 ㉟)	8.0 K	
■ ΔT2off (stop temperature differential for solar circuit pump for buffer cylinder heating R4 ㉟)	4.0 K	
■ Priority Cyl1	1	
■ Priority Cyl2	2	
Solar contractor		
■ t-stop (duration of the pump runtime interruption)	2 minutes	
■ t-circ. (break intervals)	15 minutes	
■ ΔT Col During the t-stop time the collector temperature must rise by the value of ΔT Col to change over to heating the consumer with priority 1.	2 K	
System options		
■ Add. fct. (Additional function for DHW heating)	No	Yes (if a DHW circulation pump is connected)
■ ΔT Fct6 (ΔT function for switching the three-way diverter valve R6 ㊻, function block 2, see page 112)	No	Yes
Set system values		
■ ΔT6on (start temperature differential for R6)	5.0 K	
■ ΔT6off (stop temperature differential for R6)	3.0 K	

For pump speed, see page 139.

System example 2 (cont.)

In conjunction with a wall mounted oil/gas boiler

Codes required at the boiler and heating circuit control unit

Code	Function
53:3	System without DHW circulation pump: The circulation pump for cylinder heating ④ is connected to output 28 of **internal** extension H1 or H2
5b:1	Internal diverter valve without function (DHW cylinder connected downstream of the low loss header)

System example 3

DHW heating with two mono-mode DHW cylinders

Main components

- Viessmann solar collectors
- 2 DHW cylinders Vitocell 100-V or Vitocell 300-V
- Vitosolic 200
- Solar-Divicon
- Wall mounted oil/gas boiler or oil/gas boiler

Function description

DHW heating with solar energy

Solar circuit pump R1 ㉝ is switched on and DHW cylinder 1 ⑩ is heated up if the temperature differential between collector temperature sensor S1 ㉛ and cylinder temperature sensor S2 ⑪ is greater than the start temperature differential ΔTon.
Solar circuit pump R1 ㉝ is stopped in accordance with the following criteria:

- Actual temperature dropping below the stop temperature differential ΔToff
- Exceeding the electronic temperature limit of control unit ㊱ (max. 90 °C)
- Reaching the temperature selected at high limit safety cut-out ⑫ (if installed)

Transfer pump R5/R6 ⑮ is started in accordance with the following criteria:

- The temperature differential between sensor S5 ⑯ and sensor S6 ⑰ is greater than start temperature differential ΔT6on
- Additional function for DHW heating is enabled

The water heated in DHW cylinder 1 ⑩ is transferred to DHW cylinder 2 ⑱. This way, DHW cylinder 2 ⑱ is also heated by solar energy.
Transfer pump R5/R6 ⑮ stops when the actual temperature falls below stop temperature differential ΔT6off or if the additional function stops.
DHW circulation pump ⑬ (if installed) for DHW cylinder 2 ⑱ is controlled by boiler control unit ②.

System example 3 (cont.)

Suppression of DHW cylinder reheating by the boiler

Coding address "67" in boiler control unit ② defaults a third set DHW temperature (setting range 10 to 95 °C). This value must be below the first set DHW temperature. DHW cylinder 2 ⑱ will only be heated by boiler ① (solar circuit pump R1 ㉝ runs) if this set value cannot be achieved by the solar thermal system.

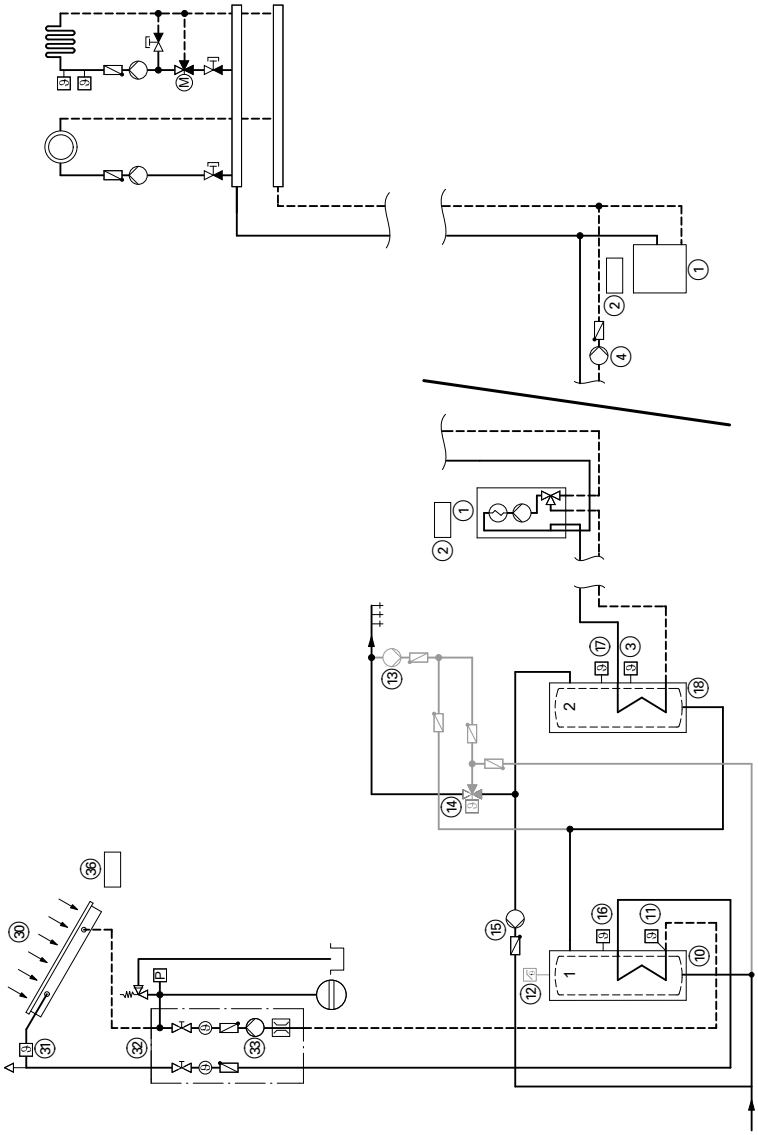
DHW heating without solar energy

DHW cylinder 2 ⑱ is heated by boiler ①. The cylinder thermostat with cylinder temperature sensor ③ of boiler control unit ② regulates circulation pump for cylinder heating ④.

5414 620 GB

System example 3 (cont.)

Hydraulic installation diagram



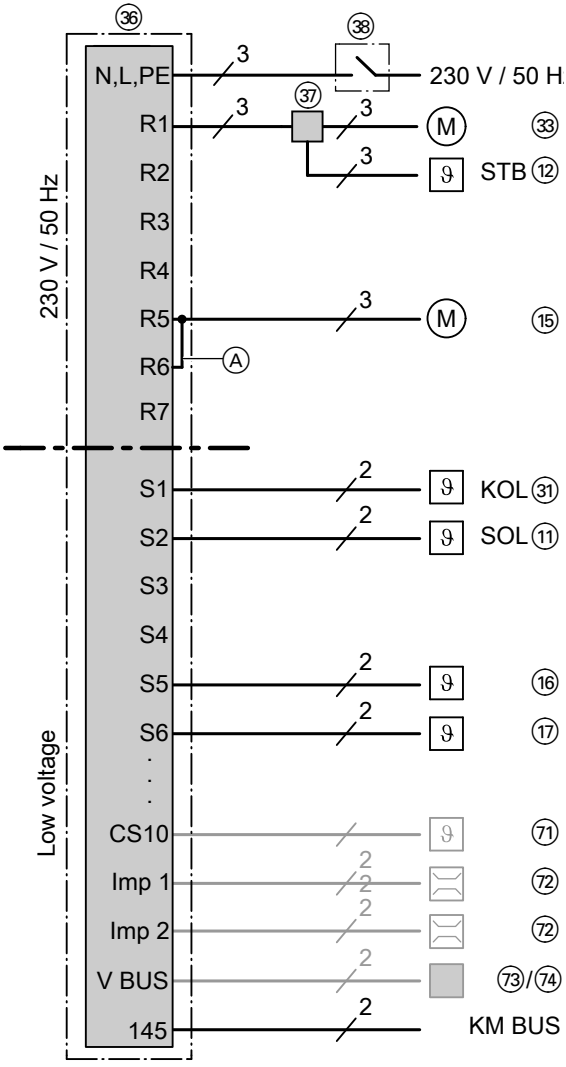
System example 3 (cont.)

Equipment required

Pos.	Description
①	**Wall mounted oil/gas boiler or oil/gas boiler** with
②	Boiler and heating circuit control unit
③	Cylinder temperature sensor
④	Circulation pump for cylinder heating (integrated for wall mounted oil/gas boiler)
⑱	DHW cylinder 2, mono-mode
⑩	DHW cylinder 1, mono-mode
⑪	Cylinder temperature sensor S2 (SOL)
⑫	High limit safety cut-out STB
⑬	DHW circulation pump (internal/external extension may be required for connecting a wall mounted oil/gas boiler)
⑭	Automatic thermostatic mixing valve
㉚	Solar collectors
㉛	Collector temperature sensor S1 (KOL)
㉜	Solar-Divicon
㉝	Solar circuit pump R1
㊱	Vitosolic 200
㊲	Junction box
㊳	ON/OFF switch (on site)
	DHW circulation diversion
⑮	Circulation pump R5/R6 (anti-stratification)
⑯	Temperature sensor S5 (DHW cylinder 1)
⑰	Temperature sensor S6 (DHW cylinder 2)
	Accessories
㉑	Solar cell
㉒	Heat meter extension kit (flow meter)
㉓	Large display
㉔	Datalogger
	For boiler and heating circuit accessories, see boiler scheme.

System example 3 (cont.)

Electrical installation diagram



Ⓐ Insert the jumper between R5 and R6.

5414 620 GB

System example 3 (cont.)

Required settings on the solar control unit

Main menu	Delivered condition	Setting
Operator code	0000	0200
Solar options		
■ System (see page 95)	1	1
Set solar values		
■ Tcylset (set cylinder temperature)	60 °C	
■ ΔTon (start temperature differential for solar circuit pump R1 ㉝)	8.0 K	
■ ΔToff (stop temperature differential for solar circuit pump R1 ㉝)	4.0 K	
System options		
■ Add. fct. (Additional function for DHW heating)	No	Yes
■ ΔT Fct6 (ΔT function for switching the circulation pump R6 ⑮, function block 2, see page 112)	No	Yes
Set system values		
■ ΔT6on (start temperature differential for R6)	5.0 K	
■ ΔT6off (stop temperature differential for R6)	3.0 K	

For pump speed, see page 139.

System example 4

DHW and swimming pool water heating with dual-mode DHW cylinder

Main components

- Viessmann solar collectors
- DHW cylinders Vitocell 100-B or Vitocell 300-B
- Swimming pool
- 2 heat exchangers for swimming pool water
- Vitosolic 200
- Solar-Divicon
- Solar pump line
- Wall mounted oil/gas boiler or oil/gas boiler

5414 620 GB

System example 4 (cont.)

Function description

DHW heating with solar energy

Solar circuit pump R1 ㉝ starts and DHW cylinder ⑩ is heated up if the temperature differential between collector temperature sensor S1 ㉛ and cylinder temperature sensor S2 ⑪ is greater than the start temperature differential ΔTon.
Solar circuit pump R1 ㉝ is stopped in accordance with the following criteria:

- Actual temperature dropping below the stop temperature differential ΔToff
- Exceeding the electronic temperature limit of control unit ㊱ (max. 90 °C)
- Reaching the temperature selected at high limit safety cut-out ⑫ (if installed)

Additional function for DHW heating

The requirements for the additional function are achieved through circulation pump R5 ⑮.

Suppression of DHW cylinder reheating by the boiler

Coding address "67" in boiler control unit ② defaults a third set DHW temperature (setting range 10 to 95 °C). This value must be below the first set DHW temperature. DHW cylinder ⑩ will only be heated by boiler ① (solar circuit pump R1 ㉝ runs) if this set value cannot be achieved by the solar thermal system.

DHW heating without solar energy

The upper section of DHW cylinder ⑩ is heated by boiler ①. The cylinder thermostat with cylinder temperature sensor ③ of boiler control unit ② regulates circulation pump for cylinder heating ④.

Swimming pool water heating by solar energy

If the DHW cylinder ⑩ cannot continue to be heated, the system checks whether the swimming pool ㊿ can be heated.
Circulation pump R4 ㉟ starts if the temperature differential between collector temperature sensor S1 ㉛ and temperature sensor S4 ㊷ is greater than start temperature differential ΔT2on. The pump stops if the actual temperature falls below the stop temperature differential ΔT2off or if the set swimming pool temperature Tcyl2set has been reached.
Circulation pump R4 ㉟ is stopped roughly every 30 minutes for approx. 7 minutes (times adjustable), to check whether the temperature at collector temperature sensor S1 ㉛ is high enough to change over to DHW cylinder heating ⑩.
The circulation pump for heating swimming pool water R3 ㊸ starts if the temperature differential between temperature sensor S3 ㊺ and temperature sensor S4 ㊷ is greater than start temperature differential ΔT5on **and** start temperature differential Th2on has not been reached. The pump stops if the actual temperature falls below the stop temperature differential ΔT5off **or** if the stop temperature Th2off has been reached.

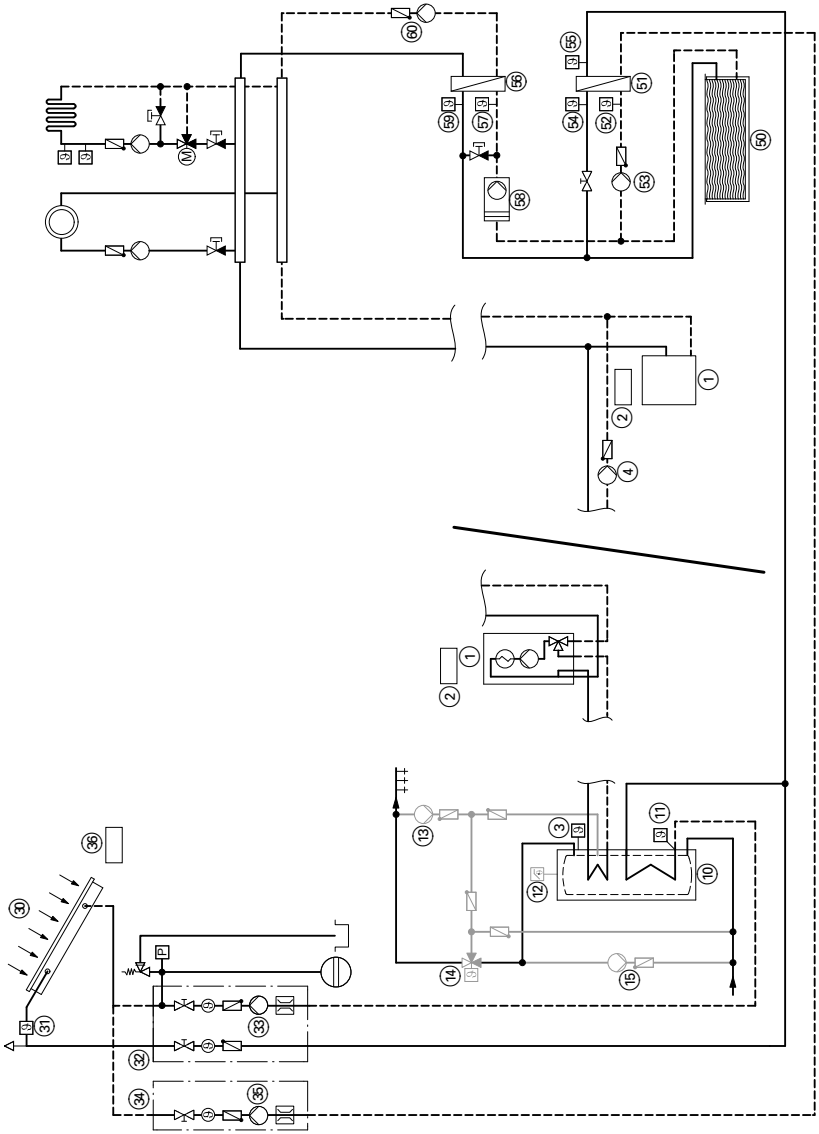
System example 4 (cont.)

Swimming pool water heating by boiler:
If the solar energy is inadequate to heat the swimming pool water, it will be heated by boiler ① via temperature sensor S5 ⑤⑦ on heat exchanger 2 ⑤⑥. Circulation pump R6 ⑥⓪ and filter pump ⑤⑧ start when the start temperature Th3on **and** has not been reached during the time set via time switch 2. The pumps stop when the stop temperature Th3off has been reached **or** if the time frame is exceeded.

Filter time and possible reheating by the boiler ①:
- outside the times during which heating by solar energy can be expected
- outside the times when central heating and DHW heating are required

System example 4 (cont.)

Hydraulic installation diagram



System example 4 (cont.)

Equipment required

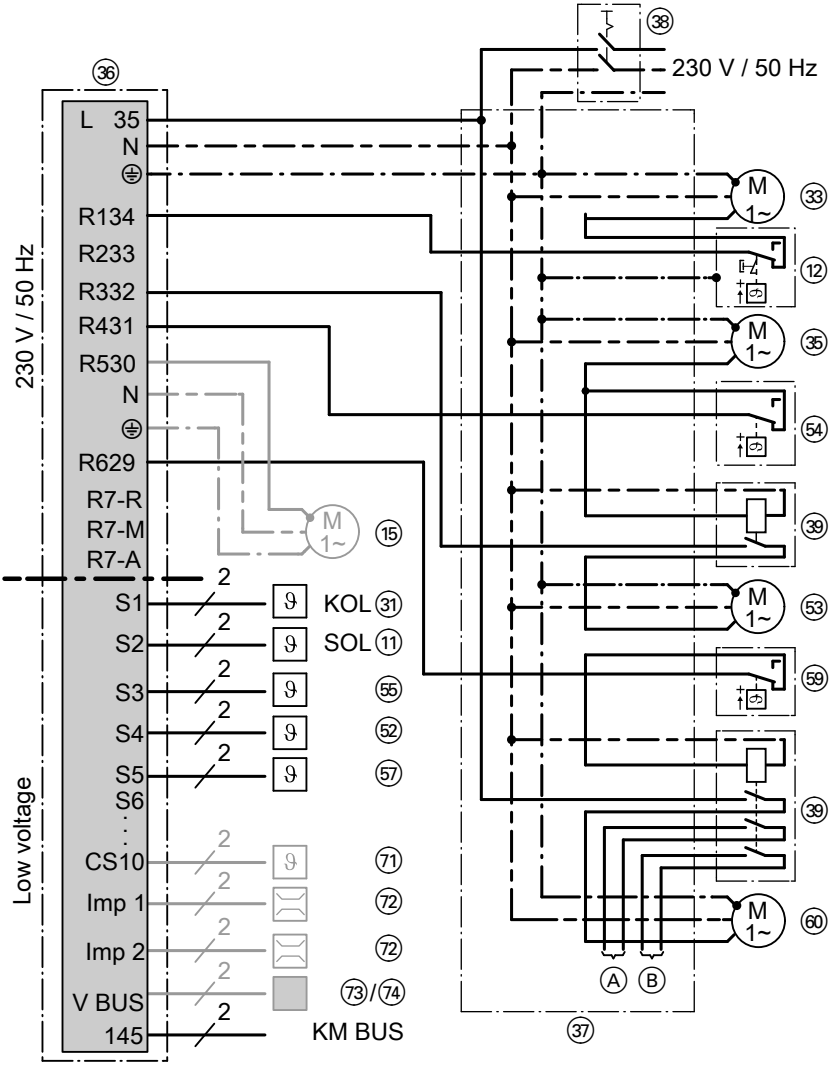
Pos.	Description
①	**Wall mounted oil/gas boiler or oil/gas boiler** with
②	Boiler and heating circuit control unit
③	Cylinder temperature sensor
④	Circulation pump for cylinder heating (integrated for wall mounted oil/gas boiler)
⑩	Dual-mode DHW cylinder
⑪	Cylinder temperature sensor S2 (SOL)
⑫	High limit safety cut-out STB
⑬	DHW circulation pump (internal/external extension may be required for connecting a wall mounted oil/gas boiler)
⑭	Automatic thermostatic mixing valve
⑮	Circulation pump R5 (anti-stratification)
㉚	Solar collectors
㉛	Collector temperature sensor S1 (KOL)
㉜	Solar-Divicon
㉝	Solar circuit pump R1
㊱	Vitosolic 200
㊲	Junction box
㊳	ON/OFF switch (on site)
㊴	Contactor relay
	Swimming pool water heating by solar energy
㊿	Swimming pool
㊶	Heat exchanger 1
㊷	Temperature sensor S4 (swimming pool)
㊺	Temperature sensor S3 (heat exchanger 1)
㉞	Solar pump line
㉟	Solar circuit pump for swimming pool water heating R4
㊸	Circulation pump for swimming pool water heating R3
㊹	Temperature limiter (maximum limit)
	Swimming pool water heating by oil/gas boiler
㊻	Heat exchanger 2
㊼	Temperature sensor S5 (heat exchanger 2)
㊾	Temperature limiter (maximum limit)
㊿	Circulation pump for swimming pool water heating R6 (reheating)
㊶	Control module V (in conjunction with Vitotronic 200, types KW1, KW2, KW4, KW5 and Vitotronic 300, type KW3 for boiler with two-stage and modulating burner)

System example 4 (cont.)

Pos.	Description
⑱	Filter pump
	Accessories
⑦1	Solar cell
⑦2	Heat meter extension kit (flow meter)
⑦3	Large display
⑦4	Datalogger
	For boiler and heating circuit accessories, see boiler scheme.

System example 4 (cont.)

Electrical installation diagram



Ⓐ, Ⓑ See the following page.

System example 4 (cont.)

Ⓐ Start signal for filter pump ⑱
Ⓑ External burner start in conjunction with the following control units:

Vitotronic 200, types KW1, KW2, KW4, KW5, Vitotronic 300, type KW3:
Connection in plug "X12"
or
Connection in plug [150] at terminals "ON", "ON/TR"
or
in socket "DE4" in control module V ⑥①
in plug [103] at terminals "1" and "2"
(Set the minimum set boiler water temperature via coding address "32" at the boiler circuit control unit)

Vitotronic 200, type GW1, GW2:
Connection in plug [146] at terminals "2" and "3"
(Set the minimum set boiler water temperature via coding address "9b" at the boiler circuit control unit)

Vitotronic 200, type KW6:
Connection in plug [143] at terminals "1" and "2"
(Set the minimum set boiler water temperature via coding address "9b" at the boiler circuit control unit)

Vitotronic 200, type HO1/HO1A:
Connection in external extension H1, in plug [143] at terminals "1" and "2"
(Set the minimum set boiler water temperature via coding address "9b" at the boiler circuit control unit)

Required settings on the solar control unit

Main menu	Delivered condition	Setting
Operator code	0000	0200
Solar options		
■ System (see page 99)	1	3
■ Hyd. Type (see page 99)	1	2
Set solar values		
■ Tcylset (set cylinder temperature)	60 °C	
■ Tcyl2set (set swimming pool temperature)	60 °C	28 °C
■ ΔTon (start temperature differential for solar circuit pump R1 ㉝)	8.0 K	
■ ΔToff (stop temperature differential for solar circuit pump R1 ㉝)	4.0 K	
■ ΔT2on (start temperature differential for solar circuit pump for swimming pool water heating R4 ㉟)	8.0 K	
■ ΔT2off (stop temperature differential for solar circuit pump for swimming pool water heating R4 ㉟)	4.0 K	
■ Priority Cyl1	1	
■ Priority Cyl2 (swimming pool)	2	

System example 4 (cont.)

Main menu	Delivered condition	Setting
Solar contractor		
■ t-stop (duration of the pump runtime interruption)	2 minutes	7 minutes
■ t-circ. (break intervals)	15 minutes	30 minutes
■ ΔT Col During the t-stop time the collector temperature must rise by the value of ΔT Col to change over to heating the consumer with priority 1.	2 K	
System options		
■ Add. fct. (Additional function for DHW heating)	No	Yes (if a DHW circulation pump is connected)
■ Thermost. 2 (S4) (Thermostat function for maximum temperature stop of circulation pump R3 ⑤③, function block 1, see page 112)	No	Yes
■ ΔT Fct5 (ΔT function for switching the circulation pump R3 ⑤③, function block 1, see page 112)	No	Yes
■ Thermost. 3 (S5) (Thermostat function for swimming pool water heating by the boiler, for switching circulation pump R6 ⑥⓪, function block 2, see page 112)	No	Yes
■ Time switch 2[*1]	No	Yes
Set system values		
■ Th2on (start temperature for R3)	40 °C	Tcyl2set−0.5 K
■ Th2off (stop temperature for R3)	45 °C	Tcylset[*2]
■ ΔT5on (start temperature differential for R3)	5.0 K	
■ ΔT5off (stop temperature differential for R3)	3.0 K	
■ Th3on (start temperature for R6 and ⑤⑧)	40 °C	26.5 °C
■ Th3off (stop temperature for R6 and ⑤⑧)	45 °C	Th3on + 0.5 K

For pump speed, see page 139.

For the solar circuit pump for swimming pool water heating R4 ③⑤, parameter **"Control"** must not be set to **"Pulse"** (see page 140).

[*1] *Setting the times, see page 159.*

[*2] *Possibly set a value 1 to 2 K higher. For this, observe that the relative humidity will increase in indoor swimming pools.*

System example 5

DHW heating and central heating backup with a multi-mode heating water buffer cylinder

Main components

- Viessmann solar collectors
- Vitocell 340-M or Vitocell 360-M multi-mode heating water buffer cylinder with integral DHW heating, with or without stratification system
- Vitosolic 200
- Solar-Divicon
- Wall mounted oil/gas boiler or oil/gas boiler

Function description

DHW heating with solar energy

Solar circuit pump R1 ㉝ starts and heating water buffer cylinder ⑩ is heated up if the temperature differential between collector temperature sensor S1 ㉛ and cylinder temperature sensor S2 ⑪ is greater than the start temperature differential ΔTon.
Solar circuit pump R1 ㉝ is stopped in accordance with the following criteria:

- Actual temperature dropping below the stop temperature differential ΔToff
- Exceeding the electronic temperature limit of control unit ㊱ (max. 90 °C)
- Reaching the temperature selected at high limit safety cut-out ⑫ (if installed)

Entire heating water buffer cylinder ⑩ is heated by the solar thermal system if the insolation is adequate.
The upper part of heating water buffer cylinder ⑩ will only be reheated by boiler ① if the actual water temperature falls below the set temperature selected at boiler control unit ②.

If the solar energy is inadequate to cover the entire heat demand, the DHW in the lower part of heating water buffer cylinder ⑩ will be preheated by solar energy. The DHW in the upper part of the cylinder is heated to the required temperature by boiler ①.

Suppression of DHW cylinder reheating by the boiler

Coding address "67" in boiler control unit ② defaults a third set DHW temperature (setting range 10 to 95 °C). This value must be below the first set DHW temperature. The DHW cylinder will only be heated by the boiler (solar circuit pump R1 ㉝ runs) if this set value cannot be achieved by the solar thermal system.

DHW heating without solar energy

The upper area of heating water buffer cylinder ⑩ is heated by boiler ①. The integral instantaneous water heater/standby section is heated by the surrounding buffer cylinder water.
The cylinder thermostat with cylinder temperature sensor ③ of boiler control unit ② regulates circulation pump for cylinder heating ④.

5414 620 GB

System example 5 (cont.)

Central heating with solar energy

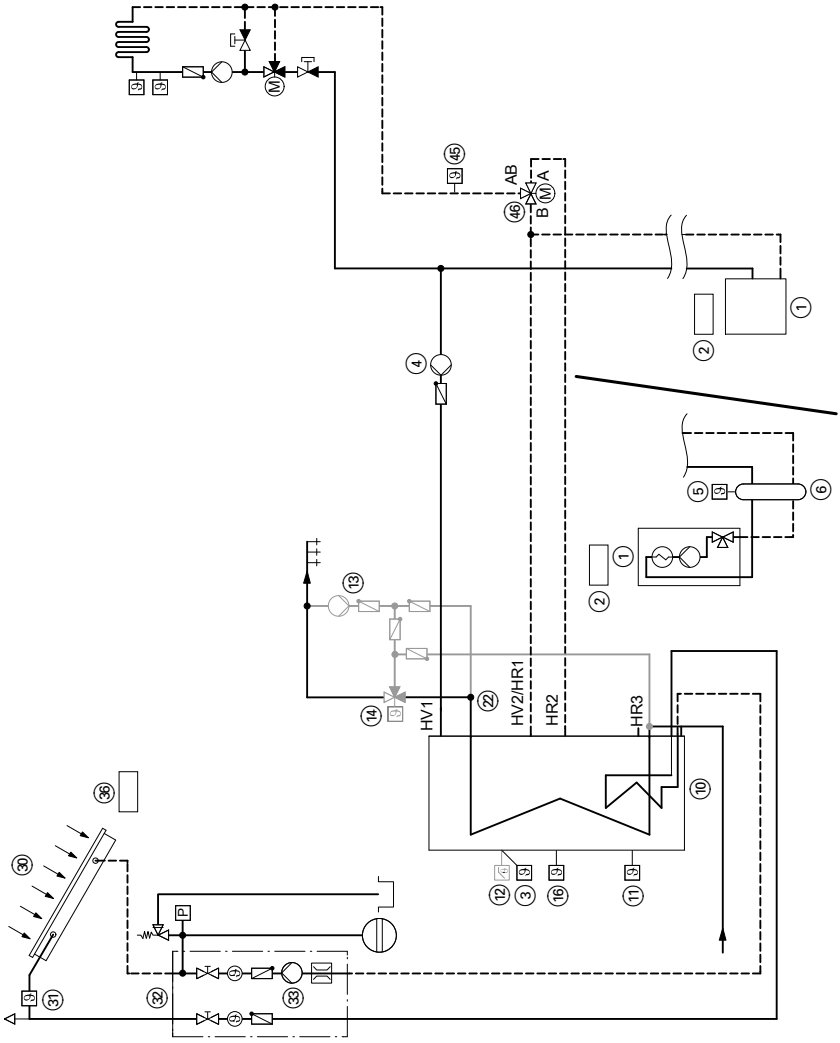
Three-way diverter valve R6 (46) is switched to position "AB-A" if the temperature differential between buffer cylinder temperature sensor S5 (16) and heating circuit return temperature sensor S6 (45) is greater than start temperature differential ΔT6on. The heating return water is fed to boiler (1) via heating water buffer cylinder (10).
If the temperature of the preheated return water is too low, boiler (1) reheats the water to the required flow temperature. Three-way diverter valve R6 (46) is switched to position "AB-B" if the actual temperature falls below stop temperature differential ΔT6off.

Central heating without solar energy

Three-way diverter valve R6 (46) remains at zero volt (position "AB-B") if the temperature differential between buffer cylinder temperature sensor S5 (16) and heating circuit return temperature sensor S6 (45) is less than stop temperature differential ΔT6off. There will be no flow through heating water buffer cylinder (10).
Boiler (1) supplies the heating circuit with heat according to the heating curve set at boiler control unit (2).
A low loss header (6) with flow temperature sensor (5) is required in conjunction with a **wall mounted oil/gas boiler**.

System example 5 (cont.)

Hydraulic installation diagram



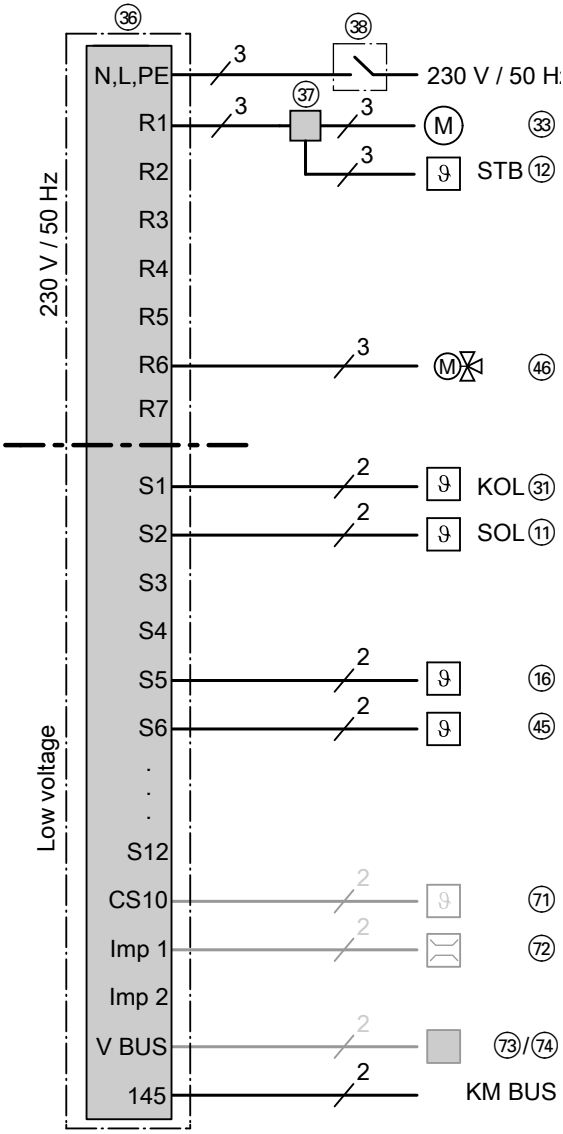
System example 5 (cont.)

Equipment required

Pos.	Description
①	**Wall mounted oil/gas boiler or oil/gas boiler**
	with
②	Boiler and heating circuit control unit
③	Cylinder temperature sensor
④	Circulation pump for cylinder heating
	(internal/external extension may be required for connecting a wall mounted oil/gas boiler)
⑩	Heating water buffer cylinder
	with
㉒	DHW circulation (integral)
	DHW heating with solar energy
⑪	Cylinder temperature sensor S2 (SOL)
⑫	High limit safety cut-out STB
⑬	DHW circulation pump
⑭	Automatic thermostatic mixing valve
㉚	Solar collectors
㉛	Collector temperature sensor S1 (KOL)
㉜	Solar-Divicon
㉝	Solar circuit pump R1
㊱	Vitosolic 200
㊲	Junction box
㊳	ON/OFF switch (on site)
	Central heating with solar energy
⑯	Temperature sensor S5 (heating water buffer cylinder)
㊺	Return temperature sensor S6 (heating circuit)
㊻	Three-way diverter valve R6
	Accessories
㉑	Solar cell
㉒	Heat meter extension kit (flow meter)
㉓	Large display
㉔	Datalogger
	For boiler and heating circuit accessories, see boiler scheme.

System example 5 (cont.)

Electrical installation diagram



System example 5 (cont.)

Required settings on the solar control unit

Main menu	Delivered condition	Setting
Operator code	0000	0200
Solar options		
■ System (see page 95)	1	1
Set solar values		
■ Tcylset (set cylinder temperature)	60 °C	
■ ΔTon (start temperature differential for solar circuit pump R1 ㉝)	8.0 K	
■ ΔToff (stop temperature differential for solar circuit pump R1 ㉝)	4.0 K	
System options		
■ ΔT Fct6 (ΔT function for switching the three-way diverter valve R6 ㊻, function block 2, see page 112)	No	Yes
Set system values		
■ ΔT6on (start temperature differential for R6)	5.0 K	
■ ΔT6off (stop temperature differential for R6)	3.0 K	

For pump speed, see page 139.

In conjunction with a wall mounted oil/gas boiler

Codes required at the boiler and heating circuit control unit

Code	Function
53:3	System without DHW circulation pump: The circulation pump for cylinder heating ④ is connected to output [28] of **internal** extension H1 or H2
5b:1	Internal diverter valve without function (DHW cylinder connected downstream of the low loss header)

System example 6

DHW heating with freshwater module and central heating backup with heating water buffer cylinder

Main components

- Viessmann solar collectors
- Freshwater module
- Heating water buffer cylinder Vitocell 140-E or Vitocell 160-E
- Vitosolic 200
- Solar-Divicon
- Wall mounted oil/gas boiler or oil/gas boiler

Function description

Freshwater module ⑩ heats DHW when hot water is drawn. The energy supply to freshwater module ⑩ is provided via heating water buffer cylinder ㊵. Buffer cylinder ㊵ is heated by the solar thermal system or, in the upper area, by boiler ①.
The heated DHW is heated by freshwater module ⑩ according to the instantaneous water heater principle. An internal pump transports the heating water from heating water buffer cylinder ㊵ into the freshwater module ⑩. This heats the DHW in the heat exchanger of the freshwater module ⑩ according to the countercurrent principle. This is regulated by the internal control unit of the freshwater module ⑩.
When utilising the freshwater module with integral DHW circulation pump, the three-way diverter valve ⑪ in conjunction with sensors ⑬ and S4 ⑫ of the freshwater module can be regulated by its control unit to provide an optimum stratification of the return water into the heating water buffer cylinder ㊵.

DHW heating with solar energy

Solar circuit pump R1 ㉝ starts and heating water buffer cylinder ㊵ is heated up if the temperature differential between collector temperature sensor S1 ㉛ and cylinder temperature sensor S2 ㊶ is greater than the start temperature differential ΔTon.
Solar circuit pump R1 ㉝ is stopped in accordance with the following criteria:
- Actual temperature dropping below the stop temperature differential ΔToff
- Exceeding the electronic temperature limit of control unit ㊱ (max. 90 °C)
- Reaching the temperature selected at high limit safety cut-out ㊹ (if installed)

Entire heating water buffer cylinder ㊵ is heated by the solar thermal system if the insolation is adequate.
The upper part of heating water buffer cylinder ㊵ will only be reheated by boiler ① if the actual water temperature falls below the set temperature selected at boiler control unit ②.

DHW heating without solar energy

The upper area of heating water buffer cylinder ㊵ is heated by boiler ①. The cylinder thermostat with cylinder temperature sensor ③ of boiler control unit ② regulates circulation pump for cylinder heating ④.

System example 6 (cont.)

Central heating with solar energy

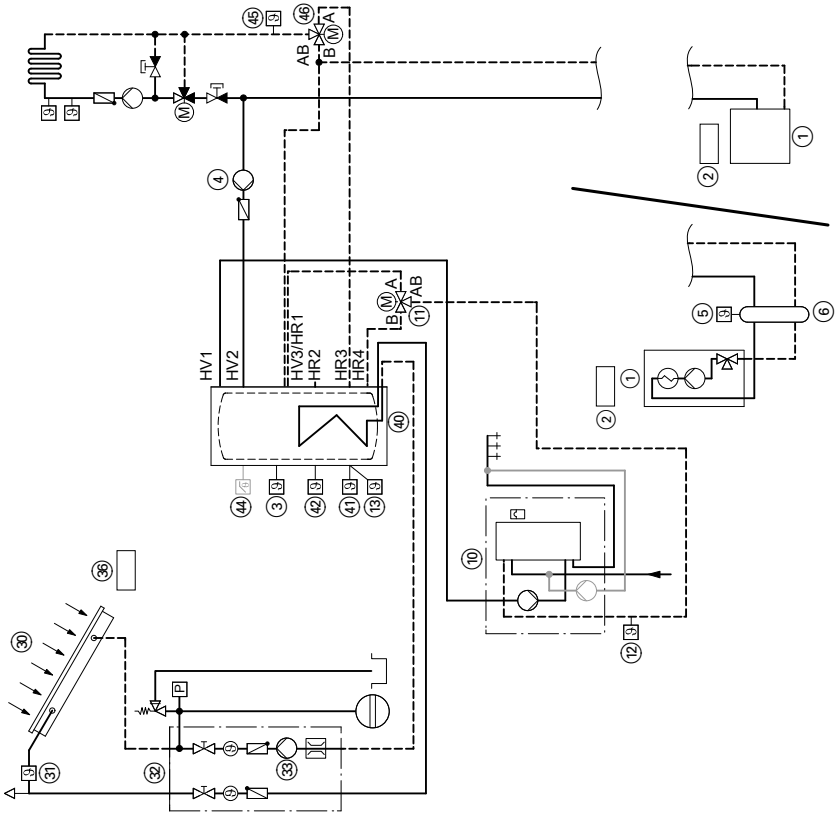
Three-way diverter valve R6 ㊻ is switched to position "AB-A" and the heating return water is routed to boiler ① via heating water buffer cylinder ㊵, if the temperature differential between buffer cylinder temperature sensor S5 ㊷ and heating circuit return temperature sensor S6 ㊺ exceeds start temperature differential ΔT6on. If the temperature of the preheated return water is too low, boiler ① reheats the water to the required flow temperature. Three-way diverter valve R6 ㊻ is switched to position "AB-B" if the actual temperature falls below the stop temperature differential ΔT6off.

Central heating without solar energy

Three-way diverter valve R6 ㊻ remains at zero volt (position "AB-B") if the temperature differential between buffer cylinder temperature sensor S5 ㊷ and heating circuit return temperature sensor S6 ㊺ is less than temperature differential ΔT6off. There will be no flow through heating water buffer cylinder ㊵.
Boiler ① supplies the heating circuit with heat according to the heating curve set at boiler control unit ②.
A low loss header ⑥ with flow temperature sensor ⑤ is required in conjunction with a **wall mounted oil/gas boiler**.

System example 6 (cont.)

Hydraulic installation diagram



System example 6 (cont.)

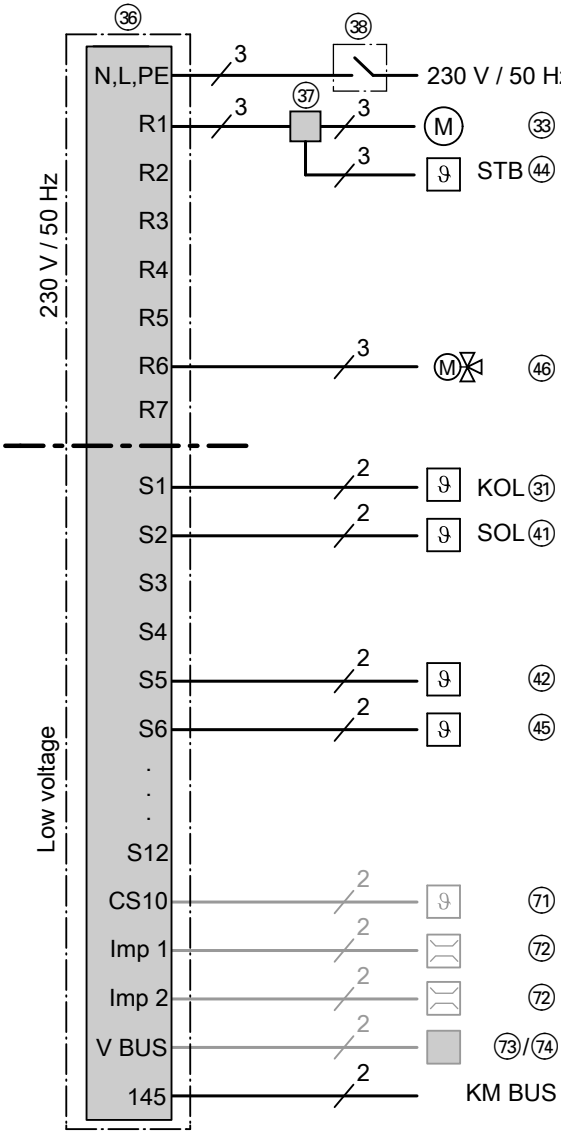
Equipment required

Pos.	Description
①	**Wall mounted oil/gas boiler or oil/gas boiler** with
②	Boiler and heating circuit control unit
③	Cylinder temperature sensor
④	Circulation pump for cylinder heating (internal/external extension may be required for connecting a wall mounted oil/gas boiler)
⑩	Freshwater module
⑪	Three-way diverter valve (accessory for pos. ⑩)
⑫	Temperature sensor S4 (accessory for pos. ⑩)
⑬	Temperature sensor S3 (accessory for pos. ⑩)
㊵	Heating water buffer cylinder
	DHW heating with solar energy
㊶	Cylinder temperature sensor S2 (SOL)
㊹	High limit safety cut-out STB
㉚	Solar collectors
㉛	Collector temperature sensor S1 (KOL)
㉜	Solar-Divicon
㉝	Solar circuit pump R1
㊱	Vitosolic 200
㊲	Junction box
㊳	ON/OFF switch (on site)
	Central heating with solar energy
㊷	Temperature sensor S5 (heating water buffer cylinder)
㊺	Return temperature sensor S6 (heating circuit)
㊻	Three-way diverter valve R6
	Accessories
㉑	Solar cell
㉒	Heat meter extension kit (flow meter)
㉓	Large display
㉔	Datalogger
	For boiler and heating circuit accessories, see boiler scheme.

System example 6 (cont.)

Electrical installation diagram

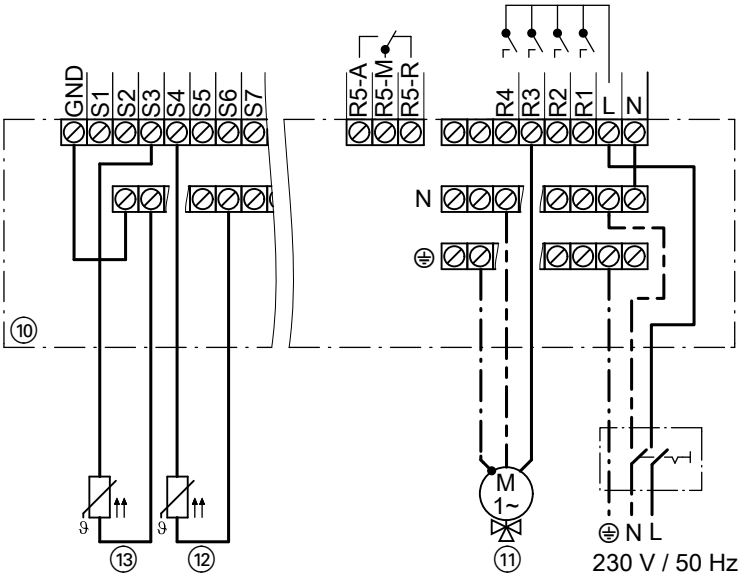
Vitosolic 200



5414 620 GB

System example 6 (cont.)

Control unit, freshwater module



Required settings on the solar control unit

Main menu	Delivered condition	Setting
Operator code	0000	0200
Solar options		
■ System (see page 95)	1	1
Set solar values		
■ Tcylset (set cylinder temperature)	60 °C	
■ ΔTon (start temperature differential for solar circuit pump R1 ㉝)	8.0 K	
■ ΔToff (stop temperature differential for solar circuit pump R1 ㉝)	4.0 K	
System options		
■ ΔT Fct6 (ΔT function for switching the three-way diverter valve R6 ㊻, function block 2, see page 112)	No	Yes

5414 620 GB

System example 6 (cont.)

Main menu	Delivered condition	Setting
Set system values		
■ ΔT6on (start temperature differential for R6)	5.0 K	
■ ΔT6off (stop temperature differential for R6)	3.0 K	

For pump speed, see page 139.

Required settings at the freshwater module control unit

Main menu	Delivered condition	Setting
Options		
■ Return dist. (return distribution)	OFF	ON
Setting values		
■ ΔT-RVon (start temperature differential for return valve R3 ⑪)	5.0 K	
■ ΔT-RVoff (stop temperature differential for return valve R3 ⑪)	5.0 K	

In conjunction with a wall mounted oil/gas boiler

Codes required at the boiler and heating circuit control unit

Code	Function
53:3	System without DHW circulation pump: The circulation pump for cylinder heating ④ is connected to output 28 of **internal** extension H1 or H2
5b:1	Internal diverter valve without function (DHW cylinder connected downstream of the low loss header)

System example 7

DHW heating with mono-mode DHW cylinder and central heating backup with multi-mode heating water buffer cylinder

Main components

- Viessmann solar collectors
- DHW cylinder Vitocell 100-V or Vitocell 300-V
- Multi-mode heating water buffer cylinder Vitocell 340-M or Vitocell 360-M with integral DHW heating, with or without stratification system
- Vitosolic 200
- Solar-Divicon
- Wall mounted oil/gas boiler or oil/gas boiler

Function description

DHW heating with solar energy

Solar circuit pump R1 ㉝ starts and heating water buffer cylinder ㊵ is heated up if the temperature differential between collector temperature sensor S1 ㉛ and cylinder temperature sensor S2 ㊶ is greater than the start temperature differential ΔTon.
Solar circuit pump R1 ㉝ is stopped in accordance with the following criteria:
- Actual temperature dropping below the stop temperature differential ΔToff
- Exceeding the electronic temperature limit of control unit ㊱ (max. 90 °C)
- Reaching the temperature selected at high limit safety cut-out ㊹ (if installed)

Entire heating water buffer cylinder ㊵ is heated by the solar thermal system if the insolation is adequate for DHW heating.

If there is inadequate solar energy, the DHW in the lower part of heating water buffer cylinder ㊵ is preheated by solar energy, and heated to the required temperature in DHW cylinder ⑩ by boiler ①.
A temperature-controlled DHW stratification is not possible.

DHW heating without solar energy

DHW cylinder ⑩ is heated by boiler ①. The cylinder thermostat with cylinder temperature sensor ③ of boiler control unit ② regulates the circulation pump for cylinder heating ④.

Central heating with solar energy

Three-way diverter valve R6 ㊻ is switched to position "AB-A" and the heating return water is routed to boiler ① via heating water buffer cylinder ㊵, if the temperature differential between buffer cylinder temperature sensor S5 ㊷ and heating circuit return temperature sensor S6 ㊺ exceeds start temperature differential ΔT6on. If the temperature of the preheated return water is too low, boiler ① reheats the water to the required flow temperature. Three-way diverter valve R6 ㊻ is switched to position "AB-B" if the actual temperature falls below the stop temperature differential ΔT6off.

5414 620 GB

System example 7 (cont.)

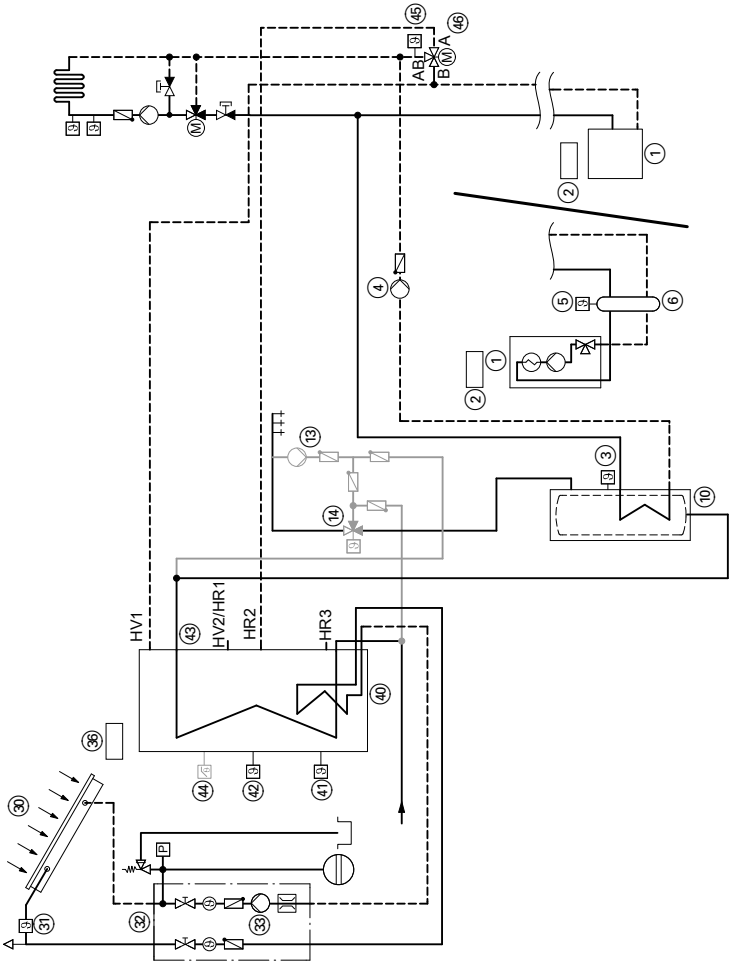
Central heating without solar energy

Three-way diverter valve R6 ㊻ remains at zero volt (position "AB-B") if the temperature differential between buffer cylinder temperature sensor S5 ㊷ and heating circuit return temperature sensor S6 ㊺ is less than stop temperature differential ΔT6off. There will be no flow through heating water buffer cylinder ㊵.

Boiler ① supplies the heating circuit with heat according to the heating curve set at boiler control unit ②.
A low loss header ⑥ with flow temperature sensor ⑤ is required in conjunction with a **wall mounted oil/gas boiler**.

System example 7 (cont.)

Hydraulic installation diagram



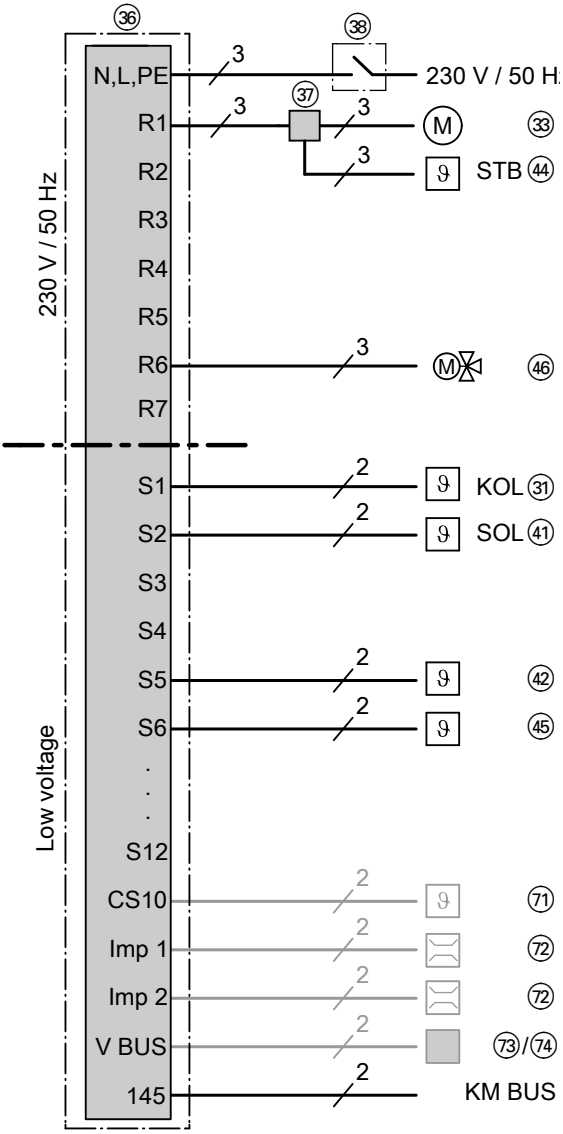
System example 7 (cont.)

Equipment required

Pos.	Description
①	**Wall mounted oil/gas boiler or oil/gas boiler**
	with
②	Boiler and heating circuit control unit
③	Cylinder temperature sensor
④	Circulation pump for cylinder heating
	(internal/external extension may be required for connecting a wall mounted oil/gas boiler)
⑩	DHW cylinder
㊵	Heating water buffer cylinder
	with
㊸	DHW circulation (integral)
	DHW heating with solar energy
㊶	Cylinder temperature sensor S2 (SOL)
㊹	High limit safety cut-out STB
⑬	DHW circulation pump
⑭	Automatic thermostatic mixing valve
㉚	Solar collectors
㉛	Collector temperature sensor S1 (KOL)
㉜	Solar-Divicon
㉝	Solar circuit pump R1
㊱	Vitosolic 200
㊲	Junction box
㊳	ON/OFF switch (on site)
	Central heating with solar energy
㊷	Temperature sensor S5 (heating water buffer cylinder)
㊺	Return temperature sensor S6 (heating circuit)
㊻	Three-way diverter valve R6
	Accessories
㉑	Solar cell
㉒	Heat meter extension kit (flow meter)
㉓	Large display
㉔	Datalogger
	For boiler and heating circuit accessories, see boiler scheme.

System example 7 (cont.)

Electrical installation diagram



5414 620 GB

System example 7 (cont.)

Required settings on the solar control unit

Main menu	Delivered condition	Setting
Operator code	0000	0200
Solar options		
■ System (see page 95)	1	1
Set solar values		
■ Tcylset (set cylinder temperature)	60 °C	
■ ΔTon (start temperature differential for solar circuit pump R1 ㉝)	8.0 K	
■ ΔToff (stop temperature differential for solar circuit pump R1 ㉝)	4.0 K	
System options		
■ ΔT Fct6 (ΔT function for switching the three-way diverter valve R6 ㊻, function block 2, see page 112)	No	Yes
Set system values		
■ ΔT6on (start temperature differential for R6)	5.0 K	
■ ΔT6off (stop temperature differential for R6)	3.0 K	

For pump speed, see page 139.

In conjunction with a wall mounted oil/gas boiler

Codes required at the boiler and heating circuit control unit

Code	Function
53:3	System without DHW circulation pump: The circulation pump for cylinder heating ④ is connected to output [28] of **internal** extension H1 or H2
5b:1	Internal diverter valve without function (DHW cylinder connected downstream of the low loss header)

System example 8

Large solar thermal systems for DHW heating

Main components

- Viessmann solar collectors
- DHW cylinder Vitocell 100-V or Vitocell 300-V
- Vitocell 100-L preheating cylinder
- Heating water buffer cylinder Vitocell 140-E or Vitocell 160-E
- Vitosolic 200
- Solar-Divicon
- Wall mounted oil/gas boiler or oil/gas boiler

Function description

DHW heating with solar energy

Charge circuit

Solar circuit pump R1 ㉝ starts and heating water buffer cylinder ㊵ is heated up if the temperature differential between collector temperature sensor S1 ㉛ and cylinder temperature sensor S2 ㊶ is greater than start temperature differential ΔTon.
Solar circuit pump R1 ㉝ is stopped in accordance with the following criteria:

- Actual temperature dropping below the stop temperature differential ΔToff
- Exceeding the electronic temperature limit of control unit ㊱ (max. 90 °C)
- Reaching the temperature selected at high limit safety cut-out ㊸ (if installed)

Primary pump (preheating cylinder) R6 ⑭ and discharge pump (heating water buffer cylinder) R3 ⑱ start in accordance with the following criteria:

- The temperature differential between buffer cylinder temperature sensor S5 ㊷ and pre-heating cylinder temperature sensor S6 ⑫ is greater than start temperature differential ΔT6on and
- The temperature in preheating cylinder ⑪ is below the value set at thermostatically controlled mixing valve ⑲

Discharge circuit

Preheating cylinder ⑪ is force-filled with cold water. The water in preheating cylinder ⑪ is heated via heat exchanger ⑰.

Additional function for DHW heating

The requirements for the additional function are achieved through circulation pump R5 ⑮. Cylinders ⑩ and ⑪ are heated.

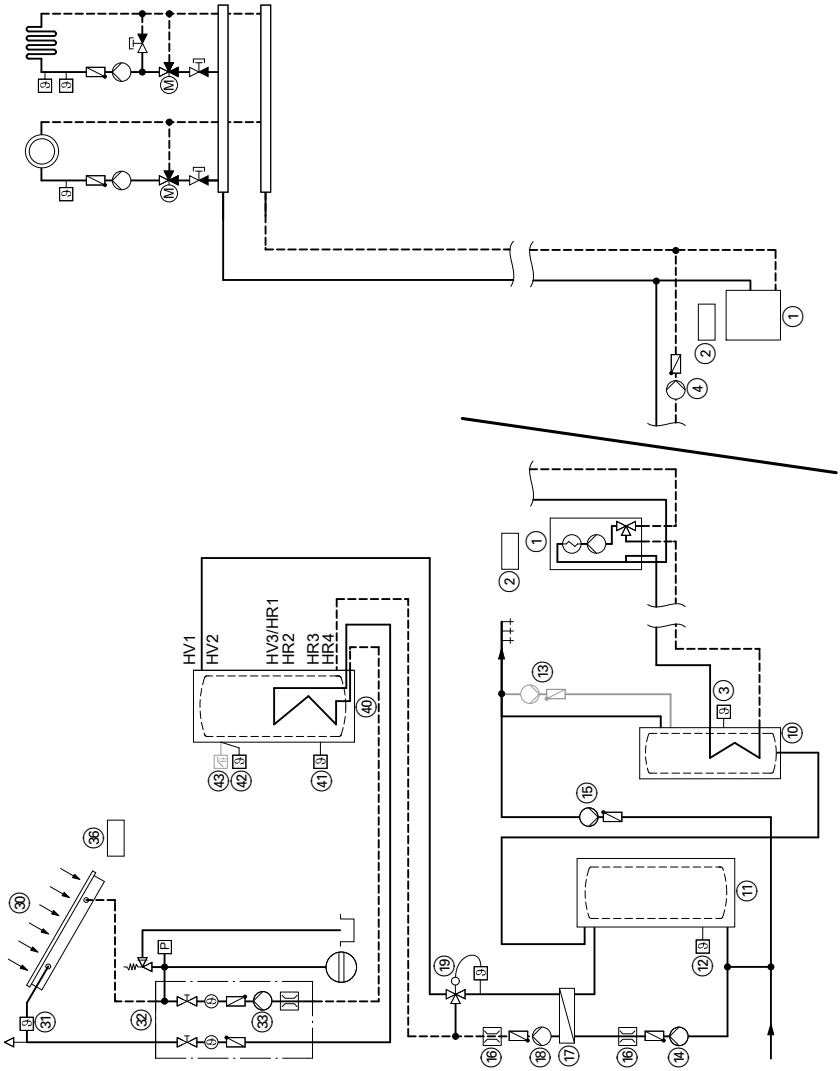
DHW heating without solar energy

DHW cylinder ⑩ is heated by boiler ①. The cylinder thermostat with cylinder temperature sensor ③ of boiler control unit ② regulates circulation pump for cylinder heating ④. DHW circulation pump ⑬ (if installed) is controlled by boiler control unit ②. Primary pump (preheating cylinder) R6 ⑭ and discharge pump (heating water buffer cylinder) R6 ⑱ are stopped. The DHW is routed to DHW cylinder ⑩ via preheating cylinder ⑪.

5414 620 GB

System example 8 (cont.)

Hydraulic installation diagram



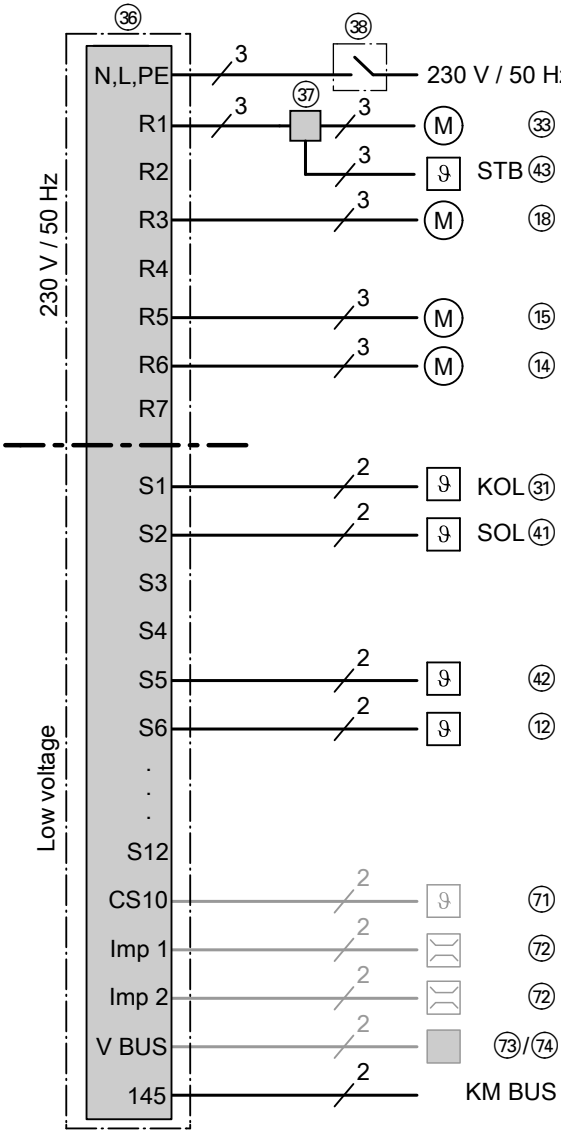
System example 8 (cont.)

Equipment required

Pos.	Description
①	**Wall mounted oil/gas boiler or oil/gas boiler**
	with
②	Boiler and heating circuit control unit
③	Cylinder temperature sensor
④	Circulation pump for cylinder heating
	(integrated for wall mounted oil/gas boiler)
⑩	DHW cylinder
	DHW heating with solar energy
⑬	DHW circulation pump
	(internal/external extension may be required for connecting a wall mounted oil/gas boiler)
⑮	Circulation pump R5 (anti-stratification)
⑪	Preheating cylinder
⑫	Temperature sensor S6 (preheating cylinder)
⑭	Primary pump R6 (preheating cylinder)
⑯	Line regulating valve
⑰	Heat exchanger
⑱	Discharge pump R3 (heating water buffer cylinder)
⑲	Thermostatic mixing valve for hard water protection
㉚	Solar collectors
㉛	Collector temperature sensor S1 (KOL)
㉜	Solar-Divicon
㉝	Solar circuit pump R1
㊱	Vitosolic 200
㊲	Junction box
㊳	ON/OFF switch (on site)
㊵	Heating water buffer cylinder
㊶	Cylinder temperature sensor S2 (SOL)
㊷	Temperature sensor S5 (heating water buffer cylinder)
㊸	High limit safety cut-out STB
	Accessories
㉑	Solar cell
㉒	Heat meter extension kit (flow meter)
㉓	Large display
㉔	Datalogger
	For boiler and heating circuit accessories, see boiler scheme.

System example 8 (cont.)

Electrical installation diagram



System example 8 (cont.)

Required settings on the solar control unit

Main menu	Delivered condition	Setting
Operator code	0000	0200
Solar options		
■ System (see page 95)	1	1
Set solar values		
■ Tcylset (set cylinder temperature)	60 °C	
■ ΔTon (start temperature differential for solar circuit pump R1 ㉝)	8.0 K	
■ ΔToff (stop temperature differential for solar circuit pump R1 ㉝)	4.0 K	
System options		
■ Add. fct. (Additional function for DHW heating)	No	Yes
■ Thermost. 2, function block 1, see page 112)	No	Yes
■ ΔT Fct5 (ΔT function for switching discharge pump (heating water buffer cylinder) R3 ⑱, function block 1, see page 112)	No	Yes
■ Thermost. 4, function block 2, see page 112)	No	Yes
■ ΔT Fct6 (ΔT function for switching the primary pump (preheating cylinder) R6 ⑭, function block 2, see page 112)	No	Yes
Set system values		
■ Th2on (start temperature for R3)	40 °C	Value at the mixing valve ⑲ – 10 K
■ Th2off (stop temperature for R3)	45 °C	Value at the mixing valve ⑲ – 7K
■ ΔT5on (start temperature differential for R3)	5.0 K	10 K
■ ΔT5off (stop temperature differential for R3)	3.0 K	6 K
■ Th4on (start temperature for R6)	40 °C	Value at the mixing valve ⑲ – 10 K
■ Th4off (stop temperature for R6)	45 °C	Value at the mixing valve ⑲ – 7 K
■ ΔT6on (start temperature differential for R6)	5.0 K	10 K
■ ΔT6off (stop temperature differential for R6)	3.0 K	6 K

5414 620 GB

System example 8 (cont.)

Main menu	Delivered condition	Setting
Sys.contractor		
■ Sen.Th2	4	6
■ Sen1 ΔT5Fct	3	5
■ Sen2 ΔT5Fct	4	6

For pump speed, see page 139.

System example 9

Large solar thermal systems for DHW heating with two mono-mode DHW cylinders and central heating backup with heating water buffer cylinder

Main components

- Viessmann solar collectors
- DHW cylinder Vitocell 100-V
- Heating water buffer cylinder Vitocell 140-E
- Vitosolic 200
- Solar-Divicon
- Solar pump line
- Wall mounted oil/gas boiler or oil/gas boiler

Function description

DHW heating with solar energy

Solar circuit pump R1 ㉝ starts and DHW cylinder ⑩ is heated up if the temperature differential between collector temperature sensor S1 ㉛ and cylinder temperature sensor S2 ⑪ exceeds the starting temperature differential ΔT.
Solar circuit pump R1 ㉝ is stopped in accordance with the following criteria:

- Actual temperature dropping below the stop temperature differential ΔToff
- Exceeding the electronic temperature limit of control unit ㊱ (max. 90 °C)
- Reaching the temperature selected at high limit safety cut-out ⑫ (if installed)

Transfer pump R5/R7 ⑮ is started in accordance with the following criteria:

- The temperature differential between sensor S7 ⑯ and sensor S8 ⑰ is greater than start temperature differential ΔT7on
- Additional function for DHW heating is enabled

The water heated in DHW cylinder 1 ⑩ is transferred to DHW cylinder 2 ⑱. This way, DHW cylinder 2 ⑱ is also heated by solar energy.
Transfer pump R5/R7 ⑮ stops when the actual temperature falls below stop temperature differential ΔT7off or if the additional function ends.
DHW circulation pump ⑬ (if installed) for DHW cylinder 2 ⑱ is controlled by boiler control unit ②.

System example 9 (cont.)

Additional function for DHW heating

The requirements for the additional function are achieved through circulation pump R5 ⑮.

Suppression of DHW cylinder reheating by the boiler

Coding address "67" in boiler control unit ② defaults a third set DHW temperature (setting range 10 to 95 °C). This value must be below the first set DHW temperature. DHW cylinder 2 ⑱ will only be heated by boiler ① (solar circuit pump R1 ㉝ runs) if this set value cannot be achieved by the solar thermal system.

DHW heating without solar energy

DHW cylinder 2 ⑱ is heated by boiler ①. The cylinder thermostat with cylinder temperature sensor ③ of boiler control unit ② regulates circulation pump for cylinder heating ④.

Central heating with solar energy

Circulation pump R4 ㉟ starts to heat heating water buffer cylinder ㊵ if DHW cylinder 1 ⑩ cannot be heated and the temperature differential between collector temperature sensor S1 ㉛ and buffer cylinder temperature sensor S4 ㊶ is greater than start temperature differential ΔT2on. The pump will stop if the actual temperature falls below the stop temperature differential ΔT2off or it reaches the set buffer cylinder temperature Tcyl2set.

The temperature inside heating water buffer cylinder ㊵ will be limited by the electronic temperature limiter or high limit safety cut-out ㊹ (if required). Circulation pump R4 ㉟ is stopped roughly every 15 min for approx. 2 min, (times adjustable), to check whether the temperature at collector temperature sensor S1 ㉛ is high enough to change over to DHW cylinder heating ⑩. Three-way diverter valve R6 ㊻ is switched to position "AB-A" and the heating return water is routed to boiler ① via heating water buffer cylinder ㊵, if the temperature differential between buffer cylinder temperature sensor S5 ㊸ and heating circuit return temperature sensor S6 ㊺ exceeds temperature differential ΔT6on. If the temperature of the preheated return water is too low, boiler ① reheats the water to the required flow temperature. Three-way diverter valve R6 ㊻ is switched to position "AB-B" if the actual temperature falls below the stop temperature differential ΔT6off.

Central heating without solar energy

Three-way diverter valve R6 ㊻ remains at zero volt (position "AB-B") if the temperature differential between buffer cylinder temperature sensor S5 ㊸ and heating circuit return temperature sensor S6 ㊺ is less than temperature differential ΔT6off. There will be no flow through heating water buffer cylinder ㊵.
Boiler ① supplies the heating circuit with heat according to the heating curve set at boiler control unit ②.

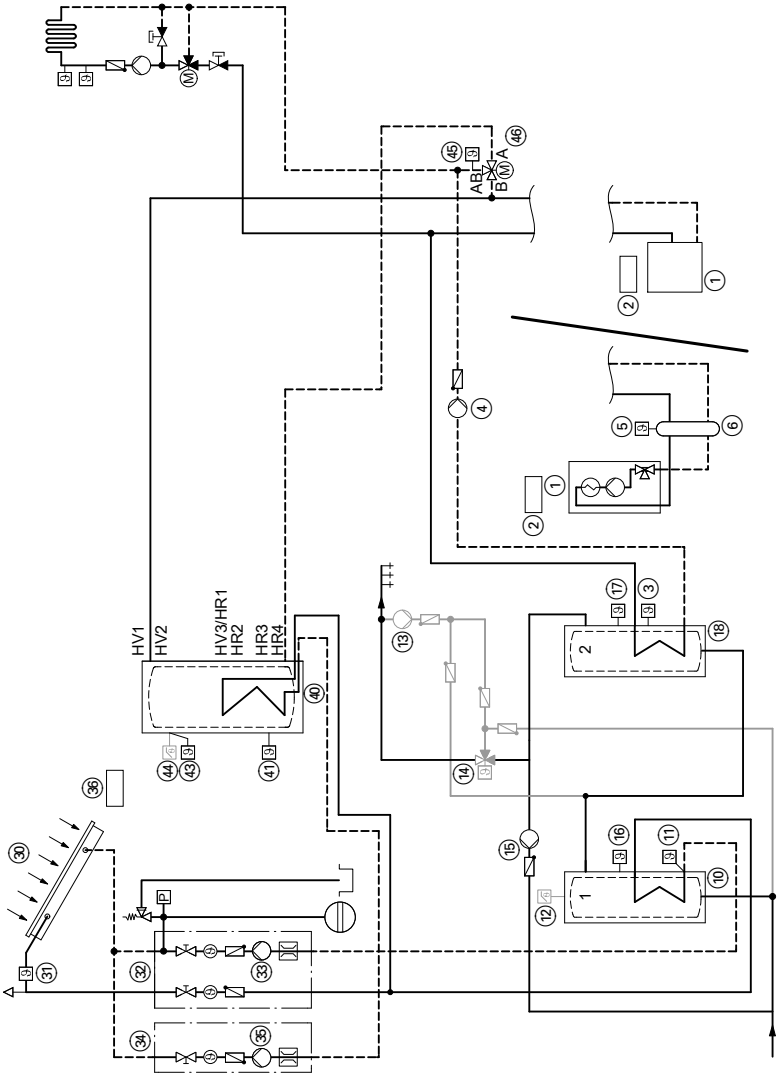
5414 620 GB

System example 9 (cont.)

A low loss header ⑥ with flow temperature sensor ⑤ is required in conjunction with a **wall mounted oil/gas boiler**.

System example 9 (cont.)

Hydraulic installation diagram



5414 620 GB

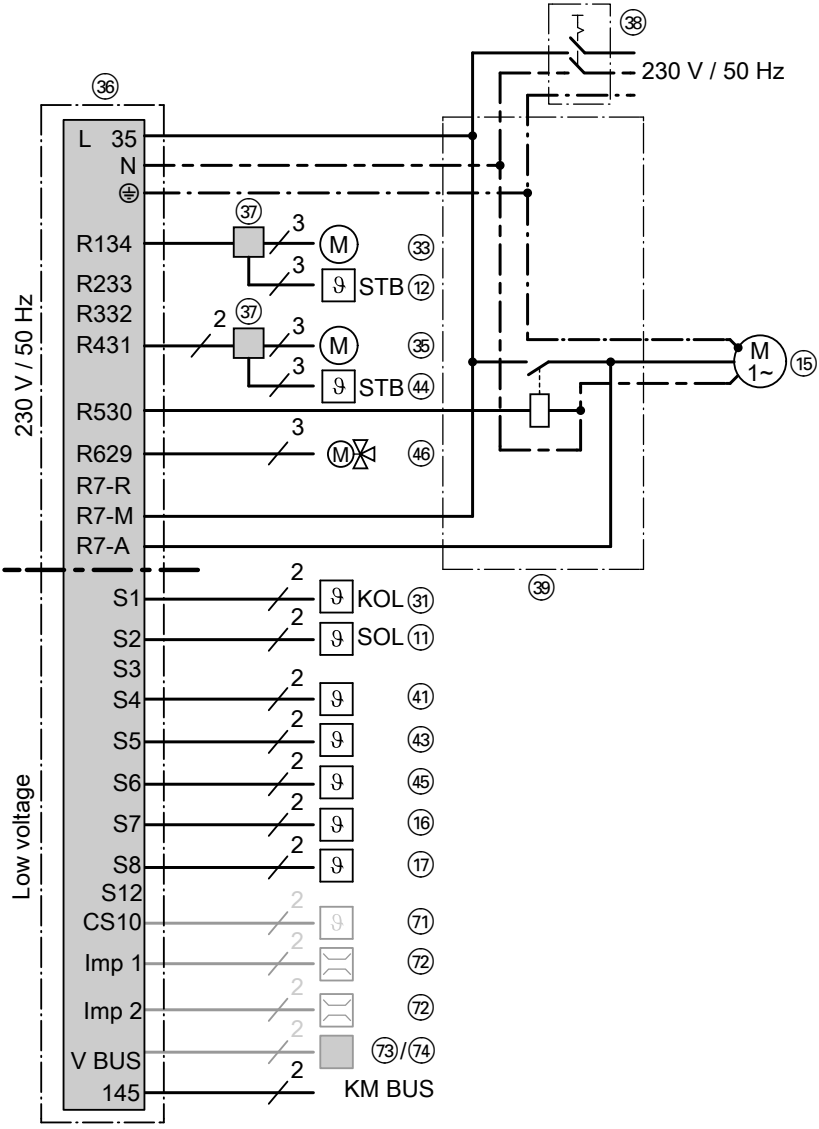
System example 9 (cont.)

Equipment required

Pos.	Description
①	**Wall mounted oil/gas boiler or oil/gas boiler**
	with
②	Boiler and heating circuit control unit
③	Cylinder temperature sensor
④	Circulation pump for cylinder heating
	(internal/external extension may be required for connecting a wall mounted oil/gas boiler)
	DHW heating with solar energy
⑩	DHW cylinder 1, mono-mode
⑪	Cylinder temperature sensor S2 (SOL)
⑫	High limit safety cut-out STB
⑬	DHW circulation pump
⑭	Automatic thermostatic mixing valve
⑮	Circulation pump R5/R7 (anti-stratification)
⑯	Temperature sensor S7
⑰	Temperature sensor S8
㉚	Solar collectors
㉛	Collector temperature sensor S1 (KOL)
㉜	Solar-Divicon
㉝	Solar circuit pump R1
㊱	Vitosolic 200
㊲	Junction box
㊳	ON/OFF switch (on site)
㊴	Contactor relay
	Central heating with solar energy
㊵	Heating water buffer cylinder
㉞	Solar pump line
㉟	Solar circuit pump for heating buffer cylinder R4
㊶	Temperature sensor S4 (heating water buffer cylinder), heating up
㊸	Temperature sensor S5 (heating water buffer cylinder), discharge
㊹	High limit safety cut-out STB
㊺	Return temperature sensor S6 (heating circuit)
㊻	Three-way diverter valve R6
	Accessories
㉑	Solar cell
㉒	Heat meter extension kit (flow meter)
㉓	Large display
㉔	Datalogger
	For boiler and heating circuit accessories, see boiler scheme.

System example 9 (cont.)

Electrical installation diagram



5414 620 GB

System example 9 (cont.)

Required settings on the solar control unit

Main menu	Delivered condition	Setting
Operator code	0000	0200
Solar options		
■ System (see page 99)	1	3
■ Hyd. Type (see page 99)	1	2
Set solar values		
■ Tcylset (set cylinder temperature)	60 °C	
■ Tcyl2set (set buffer cylinder temperature)	60 °C	
■ ΔTon (start temperature differential for solar circuit pump R1 ㉝)	8.0 K	
■ ΔToff (stop temperature differential for solar circuit pump R1 ㉝)	4.0 K	
■ ΔT2on (start temperature differential for solar circuit pump for buffer cylinder heating R4 ㉟)	8.0 K	
■ ΔT2off (stop temperature differential for solar circuit pump for buffer cylinder heating R4 ㉟)	4.0 K	
■ Priority Cyl1	1	
■ Priority Cyl2	2	
Solar contractor		
■ t-stop (duration of the pump runtime interruption)	2 minutes	
■ t-circ. (break intervals)	15 minutes	
■ ΔT Col During the t-stop time the collector temperature must rise by the value of ΔT Col to change over to heating the consumer with priority 1.	2 K	
System options		
■ Add. fct. (Additional function for DHW heating)	No	Yes
■ ΔT Fct6 (ΔT function for switching the three-way diverter valve R6 ㊻, function block 2, see page 112)	No	Yes
■ ΔT Fct5 (ΔT function for switching the transfer pump R5/R7 ⑮, function block 3, see page 112)	No	Yes
Set system values		
■ ΔT6on (start temperature differential for R6)	5.0 K	
■ ΔT6off (stop temperature differential for R6)	3.0 K	
■ ΔT7on (start temperature differential for R5/R7)	5.0 K	
■ ΔT7off (stop temperature differential for R5/R7)	3.0 K	

System example 9 (cont.)

For pump speed, see page 139.

In conjunction with a wall mounted oil/gas boiler

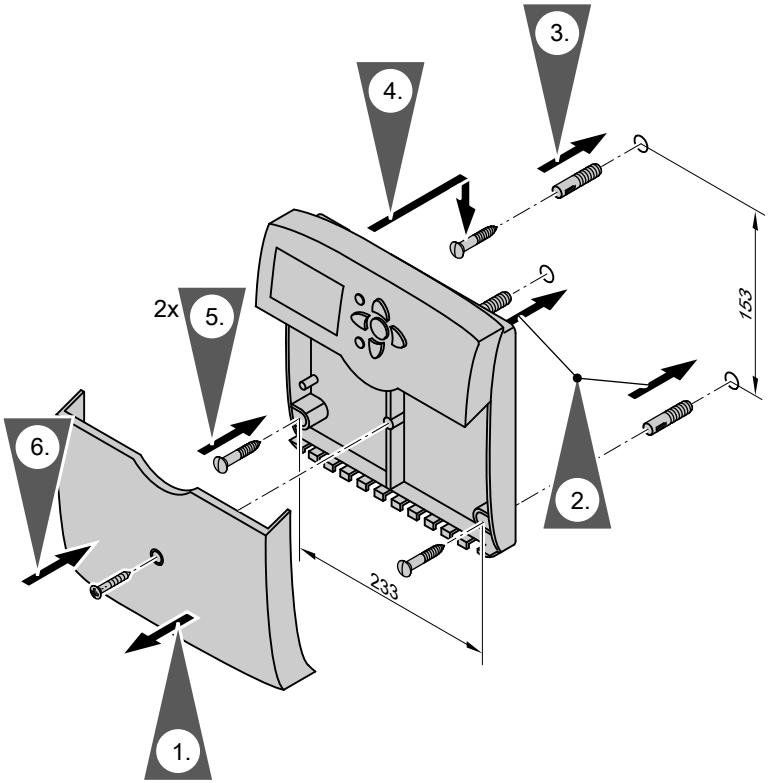
Codes required at the boiler and heating circuit control unit

Code	Function
53:3	System without DHW circulation pump: The circulation pump for cylinder heating ④ is connected to output [28] of **internal** extension H1 or H2
5b:1	Internal diverter valve without function (DHW cylinder connected downstream of the low loss header)

5414 620 GB

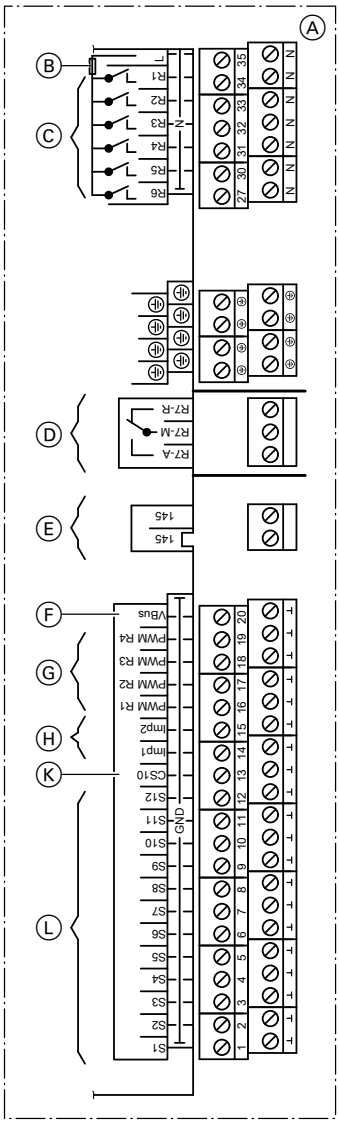
Fitting the solar control unit

When selecting the installation location, take note of the electrical connections and cable/lead lengths.



Before closing the solar control unit, make all electrical connections and apply a strain relief to all cables/leads.

Overview of electrical connections



Ⓐ Wiring chamber of the solar control unit

Ⓑ Fuse, 6.3 A (slow)

Ⓒ Semi-conductor relay (R1 to R4 suitable for speed control)

5414 620 GB

Overview of electrical connections (cont.)

Ⓓ Zero volt relay output
Ⓔ KM BUS
Ⓕ V BUS (e.g. connection to a large display or to the datalogger, accessories)
Ⓖ PWM signals for pumps at R1 to R4
Ⓗ Pulse counter input for connection of flow meters
Ⓚ Solar cell CS
Ⓛ Sensor inputs

Sensor inputs

S1, S9	NTC sensors, 20 kΩ (collector temperature sensor)
S2–S8	NTC sensors, 10 kΩ (cylinder temperature sensor)
S10–S12	NTC sensors, 10 kΩ (cylinder temperature sensor)

Pumps

Possible pumps	**Parameter "Control" Make settings in menu "Contractor" (see page 165).**
Standard solar circuit pumps	
■ Without individual speed control (with integral auxiliary capacitor)	**"Pulse"**
■ With individual speed control	**"ON/OFF"**
High efficiency pumps	**"ON/OFF"**
Pumps with PWM input ***Note*** *Use only **solar** pumps, **not** heating circuit pumps.*	
■ WILO pump	**"PWM A"**
■ GRUNDFOS pump	**"PWM B"**

For information regarding speed control, see page 139

Pumps (cont.)

Installation

The circulation pump with connecting cable is part of the Solar-Divicon pump station.

Alternative pumps must be type-tested and installed in accordance with the manufacturer's details.

Separate installation and service instructions

Connection

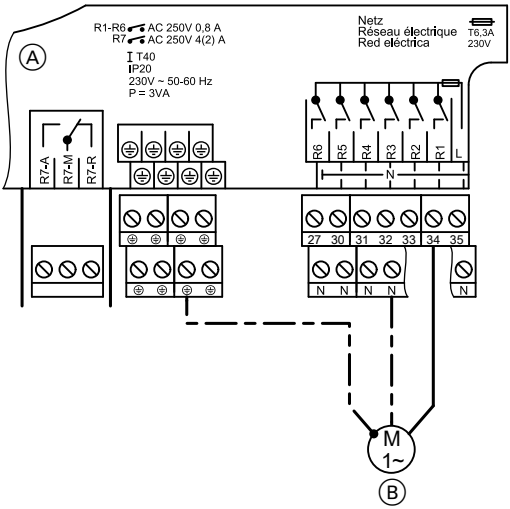
3-core cable with a cross-section of 0.75 mm^2
Connect the neutral and earth conductors with the respective collective terminal block.

Rated current
Semi-conductor relay R1 to R6: 0.8 A

Notes

- *Connect pumps that draw more than 190 W via an additional relay. Parameter **"Control"** must not be set to **"Pulse"** (see page 140).*
- *Connect **only one** pump each to outputs R1 to R6.*

Example: Connection of one pump without PWM input to R1

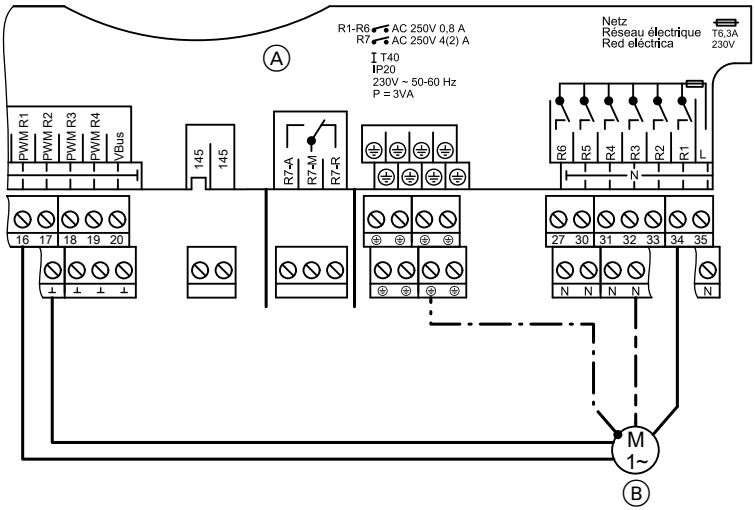


Ⓐ Wiring chamber of the solar control unit

Ⓑ Pump

Pumps (cont.)

Example: Connection of one pump with PWM input to R1



Ⓐ Wiring chamber of the solar control unit

Ⓑ Pump

High limit safety cut-out

A high limit safety cut-out in the consumer, e.g. the DHW cylinder, is required when less than 40 litres cylinder volume is available per m^2 absorber area. This installation safely prevents temperatures in excess of 95 °C in the consumer.

Note
For the Vitocell 100, observe the max. collector area that can be connected.

Installation

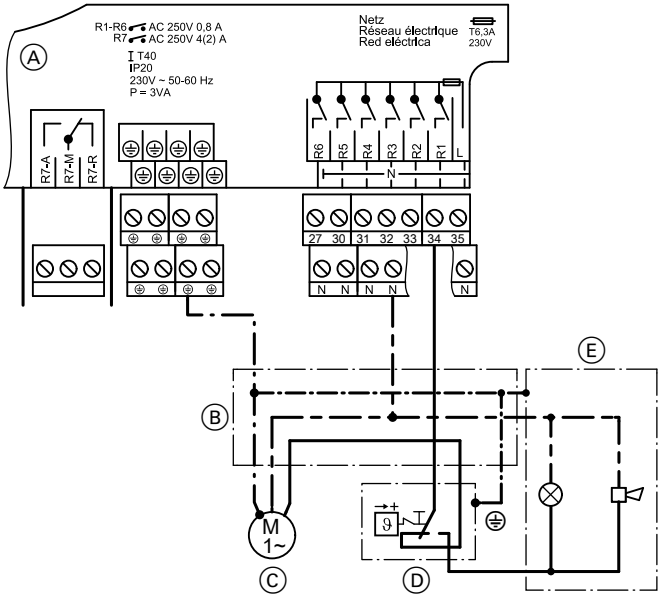
Install the sensor of the high limit safety cut-out inside the cylinder cap (Vitocell 300 accessory).

Cylinder cap installation instructions

High limit safety cut-out (cont.)

Connection

- 3-core cable with a cross-section of 1.5 mm^2.
- Systems with two collector arrays with one solar circuit pump require 2 high limit safety cut-outs.
- The changeover contact of the high limit safety cut-out allows a fault message to be issued. For this, observe the influence of the speed control on the message signal. If necessary, set parameter **"Control"** to **"On/Off"** (see page 140).



Ⓐ Wiring chamber of the solar control unit
Ⓑ Junction box (on site)
Ⓒ Solar circuit pump or primary pump for additional consumers with high limit safety cut-out
Ⓓ High limit safety cut-out
Ⓔ Fault message facility

High limit safety cut-out (cont.)

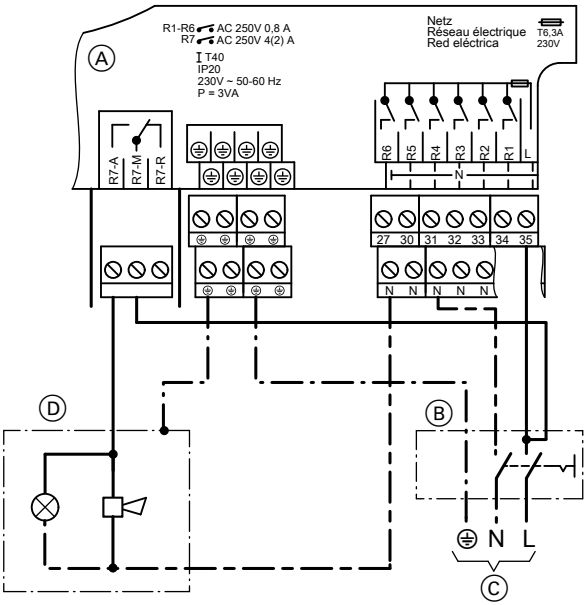
Temperature setting

Delivered condition: 120 °C
Requires adjustment to 95 °C

High limit safety cut-out installation instructions

Central fault message facility

- In accordance with the diagram, a central fault message facility can be connected to the zero volt output R7. This relay is then unavailable for any other function.
- For settings, see page 141.



Ⓐ Wiring chamber of the solar control unit
Ⓑ ON/OFF switch (on site)
Ⓒ Power supply
Ⓓ Central fault message facility

Sensors

Collector temperature sensor

Installation

Collector installation instructions

Connection

In accordance with system example and page 68.

Connect sensor to S1 or, in conjunction with 2 collector arrays to S9.
Extension of the connecting lead: 2-core cable with a cross-section of 1.5 mm^2.

Note
Never route this lead together with 230/400 V cables.

Cylinder temperature sensor

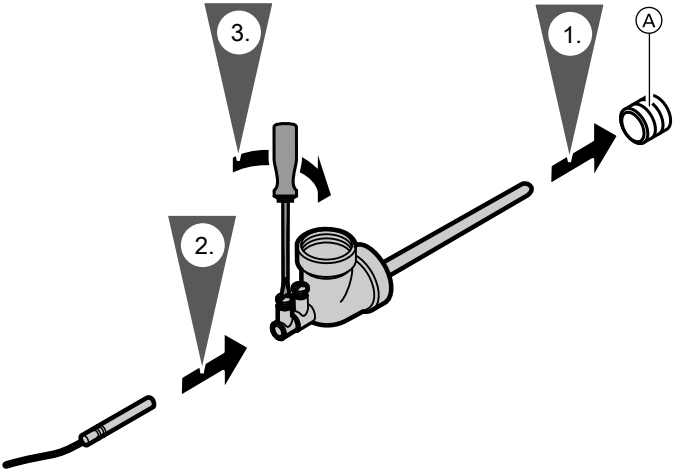
Installation

With the threaded elbow.

Vitocell 100-B and Vitocell 300-B

Installation instructions for the DHW cylinder

Vitocell 100-V and Vitocell 300-V



Ⓐ Heating water return connection

Sensors (cont.)

Connection

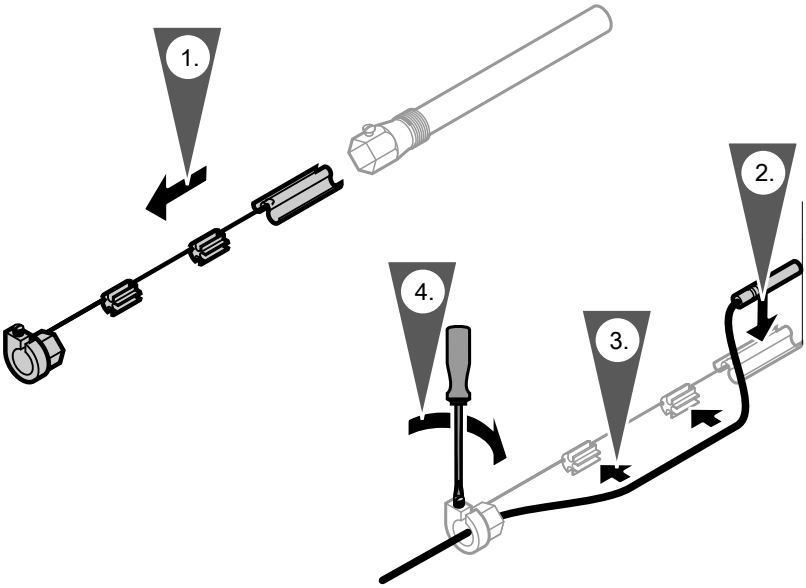
In accordance with system example and page 68.
Extension of the connecting lead: Connect sensor to S2.

2-core cable with a cross-section of 1.5 mm^2.

Note
Never route this lead together with 230/400 V cables.

Temperature sensors

Installation



Note
Never wrap insulating tape around the sensor.
Seal in the sensor well.

Temperature sensor (swimming pool):
- Install sensor into the swimming pool return, upstream of the heat exchanger.
- Installation in accordance with the details provided by the swimming pool manufacturer or the installation instructions of any installed heat exchanger

Sensors (cont.)

Connection

In accordance with system example and page 68.
Extension of the connecting lead:
2-core cable with a cross-section of 1.5 mm².

Note
Never route this lead together with 230/400 V cables.

Solar cell

Installation

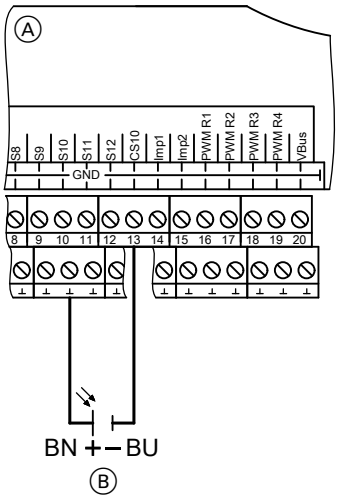
Separate installation instructions

An identifying letter (type of solar cell) is visible on the solar cell. For commissioning, enter this in the table on page 164 under **"Solarcell type"**.

Connection

2-core cable with a cross-section of 0.75 mm².
Extension of the connecting lead:
2-core cable with a cross-section of 1.5 mm².

Note
Observe polarity.
Never route this lead together with 230/400 V cables.



Ⓐ Wiring chamber of the solar control unit
Ⓑ Solar cell CS10

5414 620 GB

Solar cell (cont.)

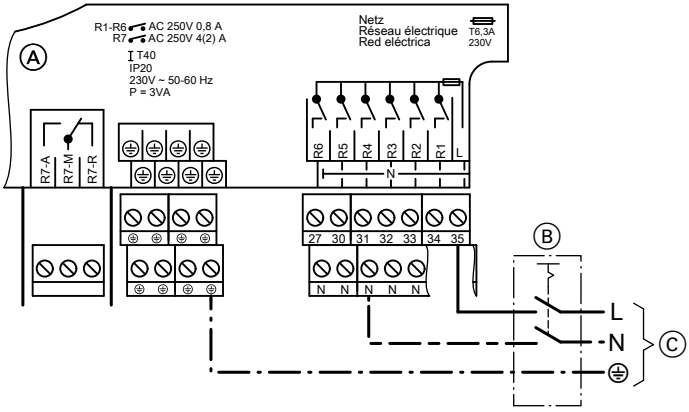
Settings

See page 164.

Power supply

Regulations

Make the power supply connection and implement all earthing measures (i.e. RCD circuit) in accordance with IEC 60364-4-41, the requirements of your local power supply utility, VDE or national regulations.



Ⓐ Wiring chamber of the solar control unit
Ⓑ Mains isolator, two-pole (on site)
Ⓒ Mains voltage 230 V/50 Hz

Power supply (cont.)

- Protect the cable to the control unit with an appropriate fuse/MCB.
- Disconnect the system by means of a device that simultaneously separates all non-earthed conductors with at least 3mm contact separation.
- Connect the power supply in accordance with the diagram.

Danger
Incorrect core termination can cause severe injuries and damage to the equipment.
Never interchange cores "L" and "N".

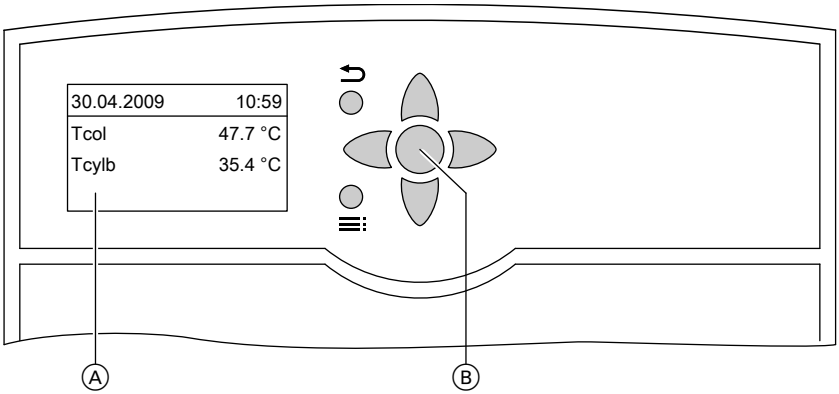
L	brown
N	blue
PE	green/yellow

Switching the power ON

1. Check whether all electrical connections have been correctly made.
2. Check that the high limit safety cut-out and temperature limiter (if required) are connected.
3. Switch ON the power; the solar control unit then begins an initialising phase.
   The standard display then appears (see following diagram).
   The solar control unit is now in automatic mode.

Navigation through the menu

Controls



Ⓐ Standard display
The standard display will automatically show after approx. 4 min, if no adjustments are made.

Ⓑ OK key
- Pressed once: Confirmation of the menu selection
- Pressed twice: Confirmation of a value change

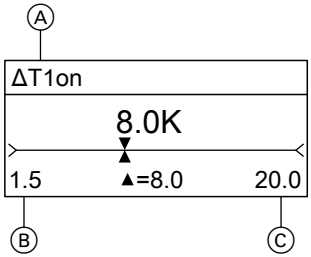
☰
- Calling up the main menu
- Back to the standard display from any menu

↩
- Back to the previous menu point
- Terminating an adjustment already begun (the value reverts to its previous setting)

▲ / ▼ Cursor keys
Navigation through the menu
The display can only show four lines of the menu at a time. The arrow on the l.h. side of the display highlights the available menu item.

Navigation through the menu (cont.)

► / ◄ Cursor keys
To display values (with graphic support; see the following diagram)



Ⓐ Parameters
Ⓑ Minimum value
Ⓒ Maximum value

Entering the operator code

Press the following keys:

1. ☰ **"Hauptmenü"** will be displayed.

Hauptmenü:
► Messwerte
Meldungen
Solar

2. ▼ for **"Bedienercode"** (lowest menu point).

Hauptmenü:
SD-Karte
Manuellbetrieb
► Bedienercode

3. OK to confirm.

Bedienercode:
0000 ▲

5414 620 GB

Entering the operator code (cont.)

4. ► / ◄ for "0200".
Confirm every figure with **OK**.
Key sequence: OK/ ► / ►/ OK/ OK/ OK

Note
After commissioning set the operator code to "0000".

Language selection

Press the following keys:

1. ☰ **"Hauptmenü"** will be displayed.

Hauptmenü:
► Messwerte
Meldungen
Solar

2. ▼ for **"Experte"** (lowest menu point).

Hauptmenü:
Manuellbetrieb
Bedienercode
► Experte

3. OK to confirm.

4. ▼ for **"Sprache"** (lowest menu point).

Experte:
Uhr
Display
► Sprache

5. OK to confirm.

6. ▲ / ▼ for the required language.

7. OK to confirm.

Setting the time and date

Make the following settings at the solar control unit:

Main menu
- **"System"**
- **"Setting values"**
  - **"Time"**
    First set the hour, then the minutes.
  - **"Date"**
    Set the year, month and day in that order.

For further time adjustments, see page 166.

Adjusting the display

The level of backlighting and font colour can be selected (black on a white background or vice-versa) (see page 166).

Setting parameters

Selecting the system and hydraulic type

Prior to setting the system parameters, the **"System"** and **"Hyd. Type"** (see chapter "Systems" from page 94) must be selected in accordance with the following criteria:

System:
- How many collector arrays have been installed?
- How many consumers have been installed?

Hydraulic type:
- Which hydraulic version (pump or valve control)?

Note
*By selecting the **"System"** and **"Hyd. Type"** relays and sensors are automatically assigned.*

Make the following settings at the solar control unit:

Main menu
- **"Solar"**
- **"Options"**
  - **"System"**
    Delivered condition: 1
    Set a value.
  - **"Hyd. Type"**
    Delivered condition: 1
    Set a value.

Setting parameters (cont.)

Note
*All parameters are reset into their delivered condition when the setting for **"System"** is changed.*

Setting pump parameters

Check which type of pumps are connected and set parameter **"Control"** accordingly (see page 69).

Activating additional functions

- For each system, additional functions can be activated (see the table for the respective system from page 95). Functions for which the same relay output is used can only be used **alternately**.
  Example system 1 (see page 95):
  The "Parallel relay" function can only be activated if no additional function for DHW heating was activated.
- For functions that can be selected independently of the relay assignment, see the following table.

Function	Page
Cylinder priority control (only in conjunction with several consumers, systems 3 to 5)	117
Collector emergency stop	118
Interval function	127
Collector cooling function	128
Return cooling function	129
Frost protection	129
Target temperature	130
Cylinder (2 to 4)	134
Overheat	134
Collector minimum limit	135
Cyclical heating	135

5414 620 GB

Setting parameters (cont.)

Resetting parameters into their delivered state

Make the following settings at the solar control unit:

Main menu
- **"Solar"**
- **"Options"**
  - **"System"**
    Set value "1".

Carrying out a relay test (testing actuators)

The relays can be switched individually or together.

Make the following settings at the solar control unit:

Main menu
- **"Manual mode"**
  - **"All relays"**
    or
  - **"Relay 1"**
    to
    "Relay 7"

Switching states:
- **"ON"**
- **"Auto"** ≙ Controlled operation
- **"OFF"**

After the relay test has been completed, select "**Auto**" for all relays.

Note
If a relay is in manual mode, the standard display will indicate accordingly:

30.04,2009	10:59
Tcol	47.7 °C
Tcylb	35.4 °C
Manual mode	

5414 620 GB

Scanning temperatures and operating conditions

Subject to system configuration, the following values can be scanned with keys ▲ / ▼:

Main menu
- **"Actual values"**

"Actual values:"		Explanation
Tcol	°C	Collector temperature
Tcol2	°C	Collector temperature, collector array 2
Tcylb	°C	Cylinder temperature, bottom
Tcyl2b	°C	Cylinder temperature, consumer 2, bottom
Tcyl3b	°C	Cylinder temperature, consumer 3, bottom
Tcyl4b	°C	Cylinder temperature, consumer 4, bottom
Tby	°C	Bypass temperature
T-HE	°C	Temperature external heat exchanger
Cyl. add.	–	Additional function for DHW heating is active
Time	–	
Date	–	
Relay		
Relay 1 to Relay 4	%	Speed, relay 1 to 4
Relay 5 to Relay 7	–	Switching state, relays 5 to 7
Sensors		
Sen.1 to Sen.12	°C	Temperature sensors 1 to 12 Display when there is a sensor break: 888.8 Display when there is a sensor short circuit: –888.8 ***Note*** *The temperature can also be displayed in °F (degree Fahrenheit) (selection, see 165)*
Intens.	W/qm	Insolation intensity (actual insolation) in conjunction with the solar cell

Scanning the statement

Subject to system configuration, the following values can be scanned with keys ▲ / ▼:

Main menu
- **"Solar"**
- **"Statement"**

Scanning the statement (cont.)

"Solar statement:"		Explanation
Colmax	°C	Maximum collector temperature, collector array 1
Col2max	°C	Maximum collector temperature, collector array 2
Cylmax	°C	Maximum DHW cylinder temperature
Cyl2max	°C	Maximum cylinder temperature, consumer 2
Cyl3max	°C	Maximum cylinder temperature, consumer 3
Cyl4max	°C	Maximum cylinder temperature, consumer 4
Relay 1 to Relay 7	h	Hours run for relays R1 to R7
Days	–	Days run, solar control unit

To reset the values, except for days run:

Whilst this value is displayed, press the following keys:

1. OK **"Delete?""Yes"** is displayed.

2. OK to confirm.

Scanning the heat yield and temperatures

For a description of the heat statement, see from page 141.

Main menu
- **"HM"**
- **"HM 1"**
  or
  "HM 2"
- **"Tflow"** (heat meter flow temperature)
- **"Tretn"** (heat meter return temperature)
- **"Heat"**

Note
Add the values for Wh, kWh and MWh together.

Resetting the amount of heat

Whilst this value is displayed, press the following keys:

1. OK **"Delete?""Yes"** is displayed.

2. OK to confirm.

Scanning messages

Main menu
- **"Messages"**

"Messages:"	Explanation
Loading cyl... (only with several consumers)	Consumer displayed is being heated.
Pause cyl... (only with several consumers)	Only in conjunction with cyclical heating (see page 135): Pause in the heating of the displayed consumer.
Cyl set...	Consumer displayed has reached its set value.
Fault	A fault has occurred at the solar control unit (for "Scanning the fault display", see page 88).
SW version	Software version
HW version	Hardware version

Priority of the displayed messages in the standard display

- Manual mode
- Fault
- Loading cyl...
- Pause cyl...

Fault messages

If the system develops faults, the display backlighting flashes and **"Fault"** will be displayed.

30.04.2009	10:59
Tcol	47.7 °C
Tcylb	35.4 °C
Fault	

Checking and acknowledging faults

Press the following keys:

1. ☰ **"Main menu"** will be displayed.

2. ▼ for **"Messages"**.

3. OK to confirm.

4. ▼ for scanning the fault.

5. OK to acknowledge.

6. ▼ for scanning further faults (see the following table).

Note
If an acknowledged fault is not removed, the fault message will be re-displayed.

Fault messages (cont.)

Displayed faults

"Messages:"		
"Fault"	Cause	Remedy
!Interruption >Sensor <	The sensor has suffered a break	Check the sensor concerned (see page 92).
!Sensor circuit >Sensor <	The sensor has suffered a short circuit	Check the sensor concerned (see page 92).
?Night circ. ***Note*** *A central fault message facility that may be connected to relay R7 will not be switched ON.*	Recirculation via gravity	Check any installed non-return damper (Solar-Divicon) or install one.
?ΔT too high See information above.	Circulation pump faulty. Message only if solar heating takes place for longer than 20 min at a temperature differential between collector and consumer greater than 50 K.	Check pump connection and pump.
!EEPROM !Processors	Internal fault.	Switch solar control unit OFF and ON again after a brief interval. Check all settings. If the fault recurs, replace the solar control unit.
!SD module fault SD fault	Display cause of the fault: Press **OK** (see page 147).	See page 147.

Fault messages (cont.)

Faults without display

- **Solar circuit pump runs hot, but no heat transport from the collector array to the consumer**
- **Flow and return lines are equally hot**
- **Noisy pipework**

Air in the system? ⇒

No	**Yes**
A dirt trap may be blocked. Clean dirt trap.	Vent the system (see collector service instructions).

The solar circuit pump starts briefly, then stops and starts again, etc:

Temperature differential ΔT too small? ⇒

No		**Yes**
Collector temperature sensor located incorrectly?		Change **"ΔTon"** and **"ΔToff"** (see page 151).
No	**Yes**	
Check interval function (see page 127).	Locate the collector temperature sensor at the hottest place on the solar flow.	

The solar circuit pump starts too late:

Start temperature differential **"ΔTon"** too great? ⇒

No	**Yes**
Collector temperature sensor located incorrectly? If yes, poss. activate interval function (see page 127).	Change **"ΔTon"** and **"ΔToff"** (see page 151).

Fault messages (cont.)

Very large temperature differential between the collector array and consumers during operation (heat cannot be dissipated):

Solar circuit pump faulty? ⇒

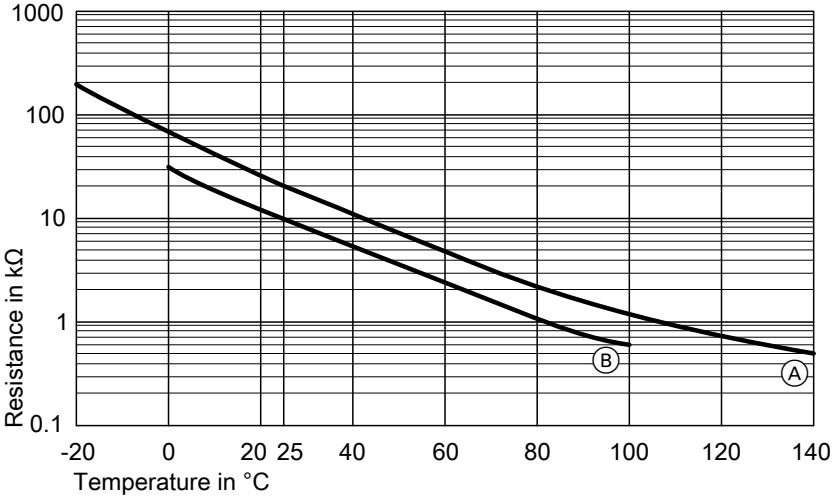
No		**Yes**
Solar heat exchanger scaled up? ⇒		Check the solar circuit pump: ■ Check the operating voltage (ON/OFF switch, power cable). ■ Check fuse F1, 6.3 A (slow). If fuse F1 is faulty; replace it (see page 93).
No	**Yes**	Descale solar heat exchanger.
Solar heat exchanger blocked? ⇒		
No	**Yes**	
Solar heat exchanger sized too small.	Flush the solar thermal system (see collector service instructions).	

The solar circuit pump does not run, although the temperature in the collector array is higher than that in the consumer.

Display dark?⇒

Yes	**No**		
■ Check the operating voltage (ON/OFF switch, power cable). ■ Check fuse F1, 6.3 A (slow). If fuse F1 is faulty; replace it (see page 93).	Check whether the solar circuit pump runs in manual mode (see page 84).		
	No		Yes
	Is pump current enabled by the solar control unit? ⇒		Start temperature differential **"ΔTon"** too great? If yes, change value (see page 151).
	No	Yes	
	Check fuse F1, 6.3 A (slow). If fuse F1 is faulty; replace it (see page 93). Otherwise replace solar control unit.	Solar circuit pump seized. Free the pump shaft. Replace the pump if it refuses to run.	

Checking sensors



Ⓐ Resistance 20 kΩ (sensor S1, S9, collector temperature sensor)

Ⓑ Resistance 10 kΩ (sensors S2 to S8, S10 to S12)

1. Disconnect the respective sensor and measure its resistance.
2. Compare the measurement with the actual temperature (for scanning see page 85). Check the installation and, in case of severe deviation, replace the sensor.

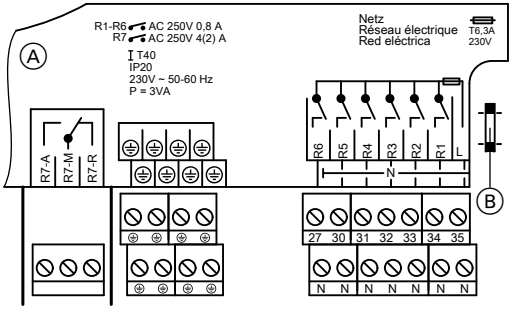
Specification

Sensor NTC	**10 kΩ at 25 °C**	**20 kΩ at 25 °C**
Protection	IP 53	IP 53
Permissible ambient temperature		
■ during operation	–20 to + 90 °C	–20 to + 200 °C
■ during storage and transport	–20 to + 70 °C	–20 to + 70 °C

Checking relays (actuators)

See chapter "Relay test" on page 84.

Changing the fuse



Ⓐ Solar control unit wiring chamber
Ⓑ Fuse, 6.3 A (slow)

Open the solar control unit wiring chamber.
A spare fuse is included in the fuse holder.

Systems

- With the Vitosolic 200 solar control unit **7 systems** with different **hydraulic types** can be implemented.
- System selection in accordance with the number of collector arrays and consumers.
- Selection of the hydraulic type in accordance with the hydraulic connection (e.g. via pumps or valves).
- For each system, additional functions can be activated (see the table for the respective system from page 95). Functions for which the same relay output is used can only be used **alternately**.
  For explanations and settings see from page 112.

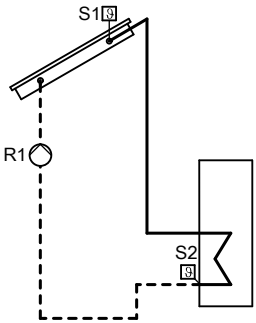
Overview

System	Number of collector arrays	Number of consumers
Delivered condition: **1** (see page 95)		
2 (see page 96)		
3 (see page 98)		
4 (see page 101)		
5 (see page 105)		
6 (see page 107)		
7 (see page 110)		

5414 620 GB

Systems (cont.)

System 1



Relay and sensor assignment

Functions	Relay R...							Sensor S...								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9
Assignment by scheme	x							x	x							
Function block 1			x							x	x					
Cooling function			x													
Ext. Heat exchanger				x						x						
Additional function					x											
Parallel relay					x											
Function block 2						x						x	x			
DHW heating						x						x	x			
Bypass		x								x						
Function block 3							x							x	x	
Central fault message							x									
Booster suppression*3							x									

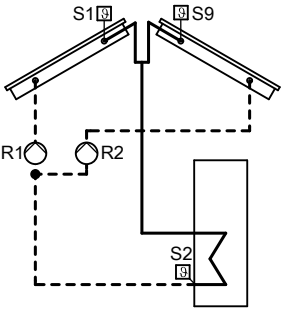
*3 *Only if this function is achieved via contact control (see page 132).*

5414 620 GB

Systems (cont.)

System 2

Hydraulic type 1



Relay and sensor assignment

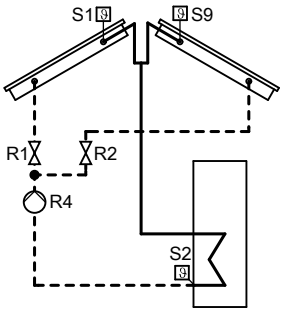
Functions	Relay R...							Sensor S...								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9
Assignment by scheme	x	x						x	x							x
Function block 1			x							x	x					
Cooling function			x													
Ext. Heat exchanger				x						x						
Additional function					x											
Parallel relay					x											
Function block 2						x						x	x			
DHW heating						x						x	x			
Bypass						x				x						
Function block 3							x							x	x	
Central fault message							x									
Booster suppression[*3]							x									

[*3] *Only if this function is achieved via contact control (see page 132).*

5414 620 GB

Systems (cont.)

Hydraulic type 2



Relay and sensor assignment

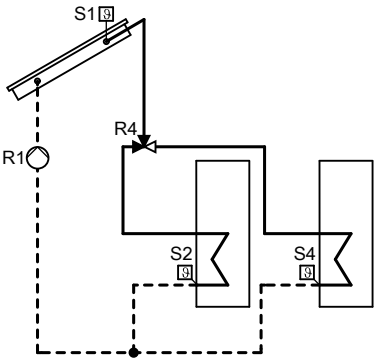
Functions	Relay R...							Sensor S...								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9
Assignment by scheme	x	x		x				x	x							x
Function block 1			x							x	x					
Ext. Heat exchanger			x							x						
Cooling function			x													
Additional function					x											
Parallel relay					x											
Function block 2						x						x	x			
DHW heating						x						x	x			
Bypass						x				x						
Function block 3							x							x	x	
Central fault message							x									
Booster suppression*3							x									

*3 *Only if this function is achieved via contact control (see page 132).*

Systems (cont.)

System 3

Hydraulic type 1



Relay and sensor assignment

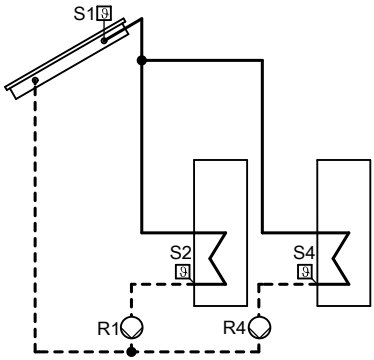
Functions	Relay R...							Sensor S...								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9
Assignment by scheme	x			x				x	x		x					
Function block 1			x							x	x					
Ext. Heat exchanger			x							x						
Additional function					x											
Parallel relay					x											
Function block 2						x						x	x			
DHW heating						x						x	x			
Bypass		x								x						
Function block 3							x							x	x	
Central fault message							x									
Booster suppression*3							x									

*3 *Only if this function is achieved via contact control (see page 132).*

5414 620 GB

Systems (cont.)

Hydraulic type 2



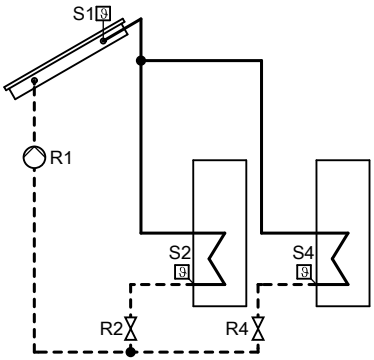
Relay and sensor assignment

Functions	Relay R...							Sensor S...								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9
Assignment by scheme	x			x				x	x		x					
Function block 1			x							x	x					
Ext. Heat exchanger			x							x						
Additional function					x											
Parallel relay					x											
Function block 2						x						x	x			
DHW heating						x						x	x			
Bypass		x								x						
Function block 3							x							x	x	
Central fault message							x									
Booster suppression*3							x									

*3 *Only if this function is achieved via contact control (see page 132).*

Systems (cont.)

Hydraulic type 3



Relay and sensor assignment

Functions	Relay R...							Sensor S...								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9
Assignment by scheme	x	x		x				x	x		x					
Function block 1			x							x	x					
Ext. Heat exchanger			x							x						
Additional function					x											
Parallel relay					x											
Function block 2						x						x	x			
DHW heating						x						x	x			
Bypass						x				x						
Function block 3							x							x	x	
Central fault message							x									
Booster suppression*3							x									

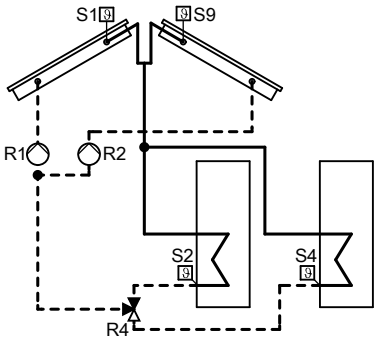
*3 *Only if this function is achieved via contact control (see page 132).*

5414 620 GB

Systems (cont.)

System 4

Hydraulic type 1



Relay and sensor assignment

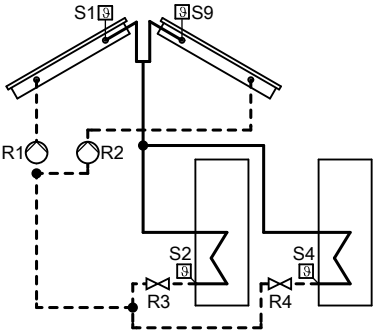
Functions	Relay R...							Sensor S...								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9
Assignment by scheme	x	x		x				x	x		x					x
Function block 1			x							x	x					
Ext. Heat exchanger			x							x						
Additional function					x											
Parallel relay					x											
Function block 2						x						x	x			
DHW heating						x						x	x			
Bypass						x				x						
Function block 3							x							x	x	
Central fault message							x									
Booster suppression*3							x									

*3 *Only if this function is achieved via contact control (see page 132).*

5414 620 GB

Systems (cont.)

Hydraulic type 2



Relay and sensor assignment

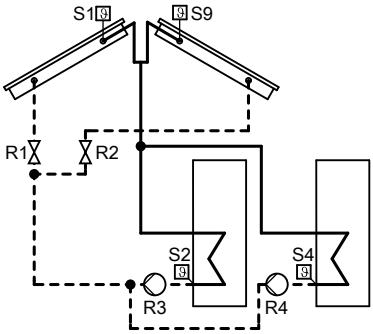
Functions	Relay R...							Sensor S...								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9
Assignment by scheme	x	x	x	x				x	x		x					x
Ext. Heat exchanger					x					x						
Additional function					x											
Parallel relay					x											
Function block 2						x						x	x			
DHW heating						x						x	x			
Bypass						x				x						
Function block 3							x							x	x	
Central fault message							x									
Booster suppression*3							x									

*3 *Only if this function is achieved via contact control (see page 132).*

5414 620 GB

Systems (cont.)

Hydraulic type 3



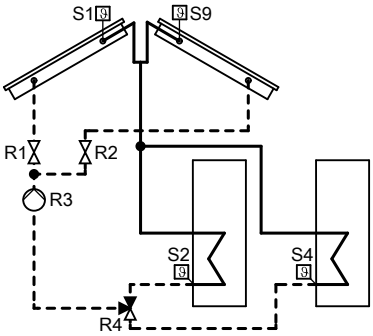
Relay and sensor assignment

Functions	Relay R...							Sensor S...								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9
Assignment by scheme	x	x	x	x				x	x		x					x
Ext. Heat exchanger					x					x						
Additional function					x											
Parallel relay					x											
Function block 2						x						x	x			
DHW heating						x						x	x			
Bypass						x				x						
Function block 3							x							x	x	
Central fault message							x									
Booster suppression*3							x									

*3 *Only if this function is achieved via contact control (see page 132).*

Systems (cont.)

Hydraulic type 4



Relay and sensor assignment

Functions	Relay R...							Sensor S...								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9
Assignment by scheme	x	x	x	x				x	x		x					x
Ext. Heat exchanger					x					x						
Additional function					x											
Parallel relay					x											
Function block 2						x						x	x			
DHW heating						x						x	x			
Bypass						x				x						
Function block 3							x							x	x	
Central fault message							x									
Booster suppression*3							x									

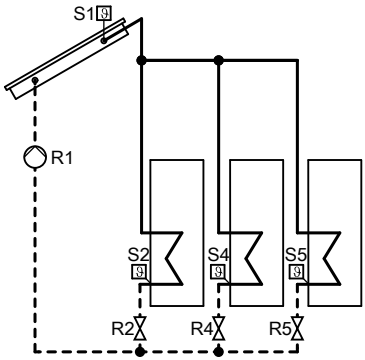
*3 *Only if this function is achieved via contact control (see page 132).*

5414 620 GB

Systems (cont.)

System 5

Hydraulic type 1



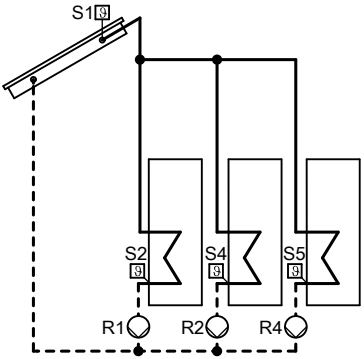
Relay and sensor assignment

Functions	Relay R...							Sensor S...								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9
Assignment by scheme	x	x		x	x			x	x		x	x				
Function block 1			x							x	x					
Ext. Heat exchanger			x							x						
Additional function			x													
Function block 2						x						x	x			
DHW heating						x						x	x			
Bypass						x				x						
Function block 3							x							x	x	
Central fault message							x									
Booster suppression*3							x									

*3 *Only if this function is achieved via contact control (see page 132).*

Systems (cont.)

Hydraulic type 2



Relay and sensor assignment

Functions	Relay R...							Sensor S...								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9
Assignment by scheme	x	x		x				x	x		x	x				
Function block 1			x							x	x					
Ext. Heat exchanger			x							x						
Additional function					x											
Parallel relay					x											
Function block 2						x						x	x			
DHW heating						x						x	x			
Bypass						x				x						
Function block 3							x							x	x	
Central fault message							x									
Booster suppression[*3]							x									

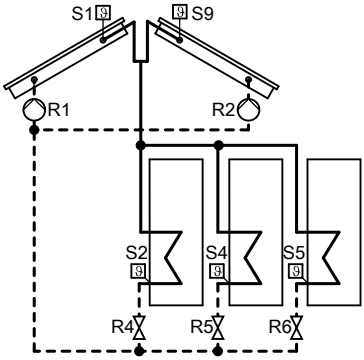
*[*3] Only if this function is achieved via contact control (see page 132).*

5414 620 GB

Systems (cont.)

System 6

Hydraulic type 1



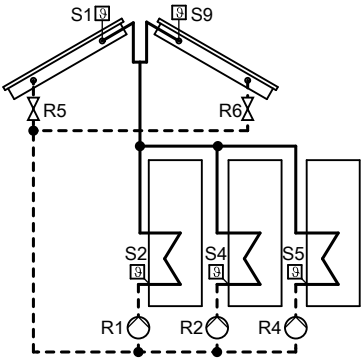
Relay and sensor assignment

Functions	Relay R...							Sensor S...								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9
Assignment by scheme	x	x		x	x	x		x	x		x	x				x
Function block 1			x							x	x					
Ext. Heat exchanger			x							x						
Additional function			x													
Function block 3							x							x	x	
Central fault message							x									
Booster suppression*3							x									

*3 *Only if this function is achieved via contact control (see page 132).*

Systems (cont.)

Hydraulic type 2



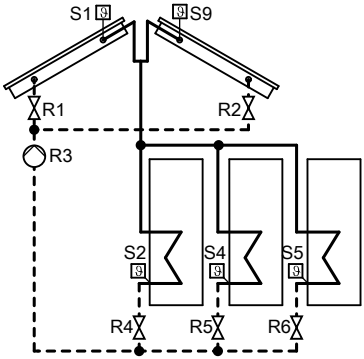
Relay and sensor assignment

Functions	Relay R...							Sensor S...								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9
Assignment by scheme	x	x		x	x	x		x	x		x	x				x
Function block 1			x							x	x					
Ext. Heat exchanger			x							x						
Additional function			x													
Bypass							x			x						
Function block 3							x							x	x	
Central fault message							x									
Booster suppression*3							x									

*3 *Only if this function is achieved via contact control (see page 132).*

Systems (cont.)

Hydraulic type 3



Relay and sensor assignment

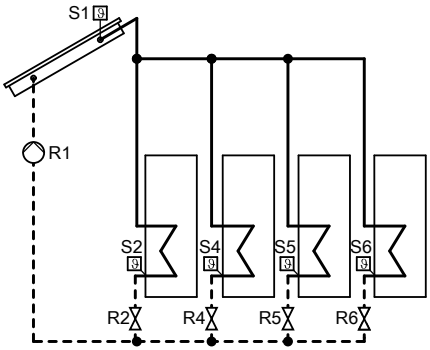
Functions	Relay R...							Sensor S...								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9
Assignment by scheme	x	x	x	x	x	x		x	x		x	x				x
Ext. Heat exchanger							x			x						
Bypass							x			x						
Function block 3							x							x	x	
Central fault message							x									
Booster suppression*3							x									

*3 *Only if this function is achieved via contact control (see page 132).*

Systems (cont.)

System 7

Hydraulic type 1



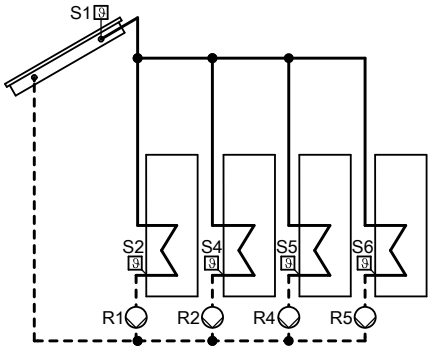
Relay and sensor assignment

Functions	Relay R...							Sensor S...								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9
Assignment by scheme	x	x		x	x	x		x	x		x	x	x			
Function block 1			x							x	x					
Ext. Heat exchanger			x							x						
Additional function			x													
Bypass							x			x						
Function block 3							x							x	x	
Central fault message							x									
Booster suppression[*3]							x									

*[*3] Only if this function is achieved via contact control (see page 132).*

Systems (cont.)

Hydraulic type 2



Relay and sensor assignment

Functions	Relay R...							Sensor S...								
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9
Assignment by scheme	x	x		x	x			x	x		x	x	x			
Function block 1			x							x	x					
Ext. Heat exchanger			x							x						
Additional function			x													
Function block 2						x										
Parallel relay						x										
Bypass						x				x						
Function block 3							x							x	x	
Central fault message							x									
Booster suppression*3							x									

*3 *Only if this function is achieved via contact control (see page 132).*

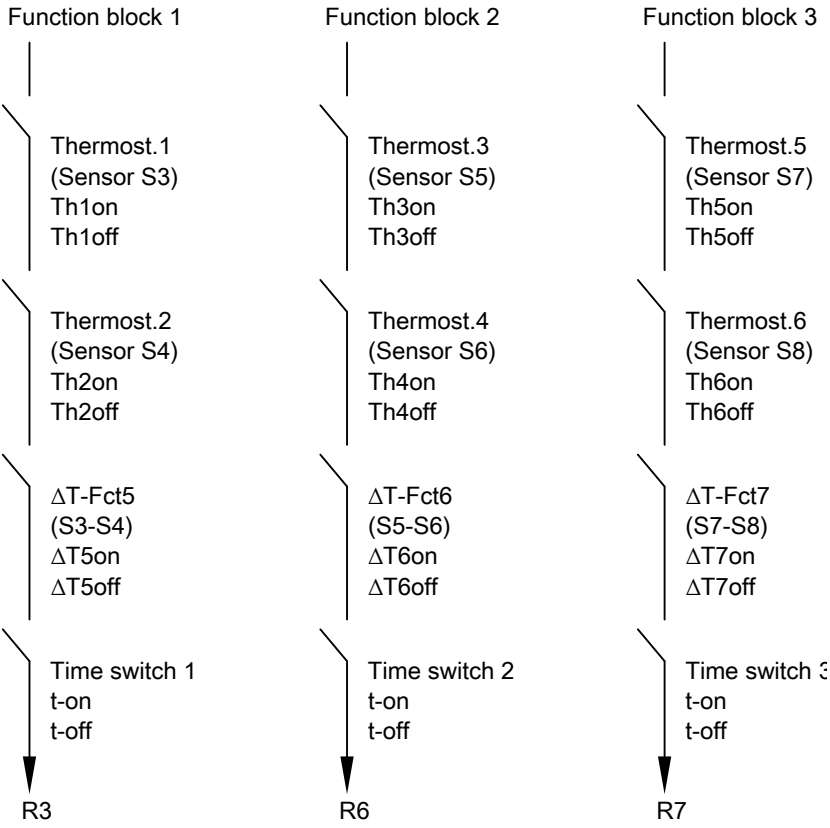
5414 620 GB

Function blocks

- If the relays 3, 6 and 7 have not been assigned by the scheme (**"System"**), they could, for example, be used for the **Function blocks 1 to 3** (see the table for the respective system from page 95).
- Within a function block, there are 4 functions that can be combined as required:
  – 2 thermostat functions
  – 1 temperature differential control
  – 1 time switch with three periods that can be activated
- In the delivered condition, certain sensors are assigned to these functions (**Reference sensors**). These sensors can be switched, i.e. sensors already used can be used for additional functions (see page 161).
- Make all settings in menu **"System"** (see from page 158).

A relay assigned to a function block will only switch if the conditions of **all activated** functions are met. These functions act like individual switches in a serial circuit (see the following diagram).

Function blocks (cont.)

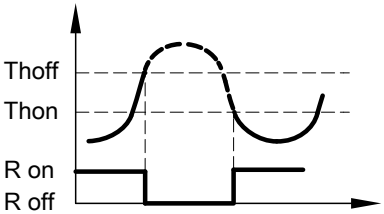
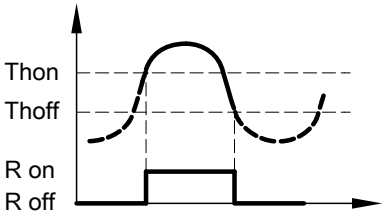


Thermostat function

The respective relay switches subject to the temperature at the reference sensor (see the following table).

Function blocks (cont.)

Different effects can be achieved by determining the start and stop temperatures:

"Thon" < "Thoff" **Adjusting the values see from page 158.**	**"Thon" > "Thoff"** **Adjusting the values, see from page 158.**
e.g. for reheating	e.g. for utilising excess heat
	

See also example 1 on page 114 and example 2 on page 115.

Differential temperature control (ΔT control)

The corresponding relay switches ON if the start temperature differential is exceeded and OFF if the stop temperature is not achieved.

Adjusting the values, see from page 158.
Also see example 2 on page 115.

Time switch

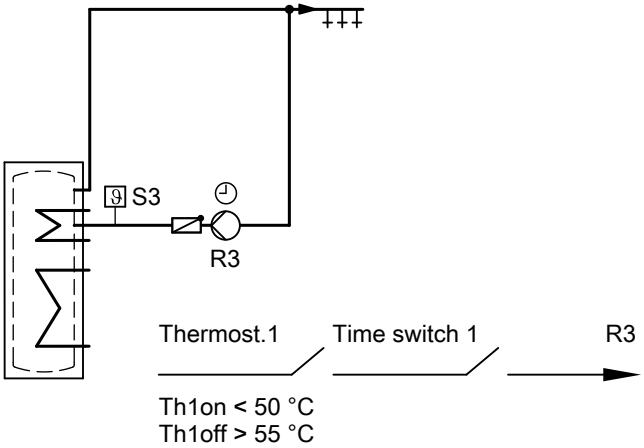
The corresponding relay switches ON at the start time **"t on"** and OFF at the stop time **"t off"** (3 periods can be activated).

Adjusting the values, see from page 159.
See also the following example.

Example 1 — Switching a DHW circulation pump

Used functions:
- Thermostat function 1
- Time switch 1

Function blocks (cont.)



To switch a DHW circulation pump, activating the time switch is sufficient. The DHW circulation pump can also be started subject to temperature with the sensor S3 in the DHW circulation line.
For parameters in the delivered condition, see from page 158.

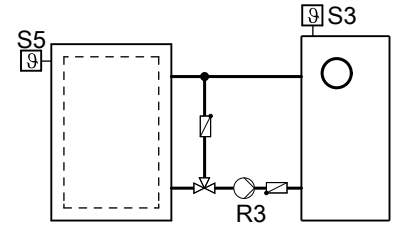
Make the following settings at the solar control unit:

1. **Main menu**
   - **"System"**
   - **"Options"**
     - **"Thermost. 1"**
       Set **"Yes"**.
     - **"Time switch 1"**
       Set **"Yes"**.
2. **Main menu**
   - **"System"**
   - **"Setting values"**
     - **"Th1on"**
       Set "50".
     - **"Th1off"**
       Set "55".
     - **"Time switch 1"**
       Select period **"t on"** and **"t off"**.

Example 2— Switching the boiler circuit pump of a solid fuel boiler

Used functions:
- Thermostat function 1
- **"ΔT-Fct5"**

Function blocks (cont.)



- Boiler circuit pump R3 **on**:
  Temperature differential **"ΔT5on"** is exceeded and **"Th1on"** is reached
- Boiler circuit pump R3 **off**:
  Temperature differential **"ΔT5off"** or **"Th1off"** is not reached

For parameters in the delivered condition, see from page 158.

Make the following settings at the solar control unit:

1. **Main menu**
   - **"System"**
   - **"Options"**
     - **"Thermost.1"**
       Set **"Yes"**.
     - **"ΔT-Fct5"**
       Set **"Yes"**.
2. **Main menu**
   - **"System"**
   - **"Setting values"**
     - **"Th1on"**
       Set "65".
     - **"Th1off"**
       Set "60".
     - **"ΔT5on"**
       Set a value.
     - **"ΔT5off"**
       Set a value.
3. Switch sensor S4:

   Main menu
   - **"System"**
   - **"Contractor"**
     - **"Sen2 ΔT5Fct"**
       Set "5".

Cylinder temperature control

The solar circuit pump starts; the cylinder is heated:

- When the selected start temperature differential **"ΔTon"** is exceeded.

Cylinder temperature control (cont.)

The solar circuit pump stops; cylinder heating terminates in accordance with the following criteria:

- When the selected stop temperature differential **"ΔToff"** is not reached.
- The corresponding consumer is blocked (sensor faulty or high limit temperature of 90 °C is reached).
- The collector array concerned is blocked (collector temperature sensor faulty or the temperature for an emergency shutdown of the collector **"Tcolemoff"** (see page 154) has been reached.
- Set cylinder temperature **"Tcyl set"** (see page 151) has been reached.

Make the following settings at the solar control unit:

Main menu

- **"Solar"**
- **"Setting values"**
  - **"ΔTon"/"ΔToff"**
    Set a value.

Cylinder temperature limit

When the set temperature **"Tcyl set"** has been exceeded (see page 151) the corresponding circulation pump stops to prevent the consumer overheating. If the consumer cools down by more than **"ΔT-Cylset"**, it will be heated again by the solar thermal system.
A safety shutdown occurs when the safety temperature of 90 °C has been reached.

Make the following settings at the solar control unit:

Main menu

- **"Solar"**
- **"Contractor"**
  - **"ΔT-Cylset"**
    Set a value.

Cylinder priority control

The consumers are heated up in numerical sequence, until the respective set temperature **"Tcyl set"** has been reached.

Note
*Consumers with the same priority value are heated up simultaneously. We **cannot** recommend this setting.*

Cylinder priority control (cont.)

Make the following settings at the solar control unit:

Main menu
- **"Solar"**
- **"Setting values"**
  - **"Priority Cyl1"** etc.
    Set a value.

Collector emergency stop

The solar thermal system enters stagnation when temperature **"Tcolemoff"** is reached. Heating of consumers is then no longer possible.

Make the following settings at the solar control unit:

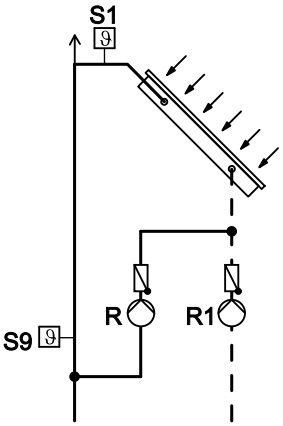
Main menu
- **"Solar"**
- **"Setting values"**
  - **"Tcolemoff"**
    Set a value.

Bypass

Bypass versions
- With collector temperature and bypass sensor
  Implementation via relays R2, R6 or R7 (subject to the selected system and hydraulic type, see from page 94).
- With solar cell
  Requires no relay assignment.
- With solar cell and collector temperature sensor
  Implementation via relays R2, R6 or R7 (subject to the selected system and hydraulic type, see from page 94).

Bypass (cont.)

Version 1 – bypass circuit with collector temperature sensor and bypass sensor



R1 Solar circuit pump
R Bypass pump (at R2, R6 or R7)
S1 Collector temperature sensor
S9 Bypass sensor
NTC sensors, 20 kΩ

- Bypass pump **on**:
  When the start temperature differential **"ΔTon"** is exceeded between the collector temperature and the cylinder temperature.
- Solar circuit pump **on**, bypass pump **off**:
  When the temperature differential between the temperature at the bypass sensor and the cylinder temperature exceeds 2.5 K (permanently set).
- Solar circuit pump **off**, bypass pump **on**:
  When the temperature differential between the temperature at the bypass sensor and the cylinder temperature falls by 1.5 K (permanently set).

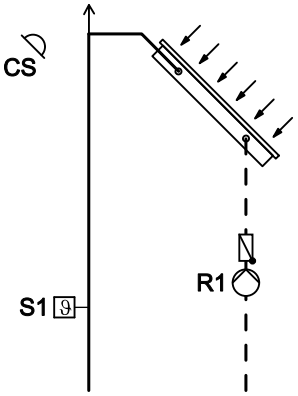
Make the following settings at the solar control unit:

1. **Main menu**
   - **"Solar"**
   - **"Options"**
     - **"Bypass"**
       Set **"Yes"**.

2. **Main menu**
   - **"Solar"**
   - **"Contractor"**
     - **"Sen. bypass"**
       Set value "9".
     - **"Bypass"**
       Set **"Pump"**.

Bypass (cont.)

Version 2 – bypass circuit with solar cell



CS Solar cell
R1 Solar circuit pump
S1 Collector temperature sensor

- The solar circuit pump also assumes the function of the bypass pump.
- The solar control unit records the solar intensity via the solar cell.
- Solar circuit pump **on**:
  When the selected insolation threshold **"SC Byp."** is exceeded.
- Solar circuit pump **off**:
  The insolation falls for approx. 2 min below the set threshold.

Make the following settings at the solar control unit:

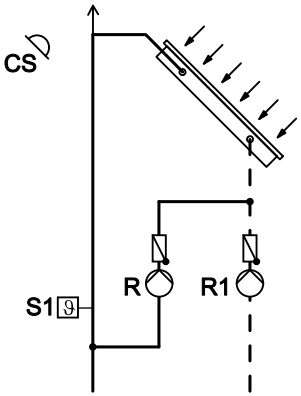
1. **Main menu**
   - **"Solar"**
   - **"Options"**
     - **"SC bypass"**
       Set **"Yes"**.

2. **Main menu**
   - **"Solar"**
   - **"Contractor"**
     - **"Solarcell type"**
       Set value from page 76.

3. **Main menu**
   - **"Solar"**
   - **"Setting values"**
     - **"SC Byp."**
       Delivered condition 200 W/m^2
       Set value (see page 153).

Bypass (cont.)

Version 3 – bypass circuit with solar cell and collector temperature sensor



CS Solar cell
R1 Solar circuit pump
R Bypass pump (at R2, R6 or R7)
S1 Collector temperature sensor

- The solar control unit records the solar intensity via the solar cell.
- Bypass pump **on**:
  When the selected insolation threshold **"SC Byp."** is exceeded.
- Bypass pump **off**, solar circuit pump **on**:
  When the start temperature differential **"ΔTon"** is exceeded between the collector temperature and the cylinder temperature.
- Bypass pump also **off**:
  The insolation falls for approx. 2 min below the set threshold.
- Reference sensor for this bypass circuit is the collector temperature sensor S1.

Make the following settings at the solar control unit:

1. **Main menu**
   - **"Solar"**
   - **"Options"**
     - **"Bypass"**
       Set **"Yes"**.
     - **"SC bypass"**
       Set **"Yes"**.

2. **Main menu**
   - **"Contractor"**
   - **"Sensors"**
     - **"Solarcell type"**
       Set value from page 76.

3. **Main menu**
   - **"Solar"**
   - **"Setting values"**
     - **"SC Byp."**
       Delivered condition 200 W/m²
       Set value (see page 153).

4. **Main menu**
   - **"Solar"**
   - **"Contractor"**
     - **"Sen. bypass"**
       Delivered condition 3
       Set value "1".
     - **"Bypass"**
       Set **"Pump"**.

5414 620 GB

External heat exchanger

In systems with several consumers, either an individual or all consumers can be heated via the external heat exchanger. The consumers can be assigned via parameter **"HE-cylinder"**.

Note
The consumers will be heated up to the selected set temperature (delivered condition 60 °C).

We differentiate between two versions:
1. Systems with several consumers and a separate primary pump for each consumer.
   Sensor S9 inside the external heat exchanger NTC sensor, 20 kΩ.
2. Systems with one consumer or several consumers with consumer selection via valve.
   Sensor S9 inside the external heat exchanger NTC sensor, 20 kΩ

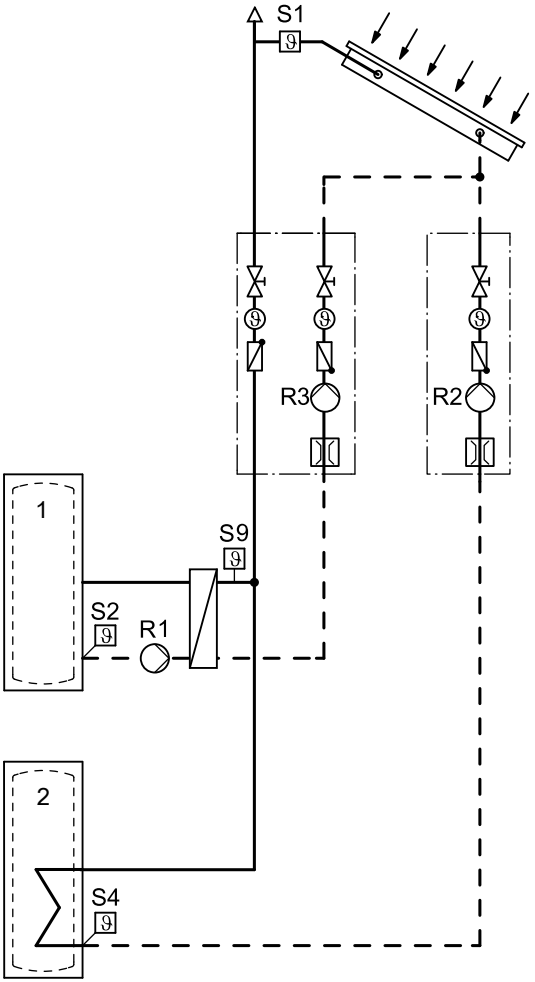
Version 1

System	Hyd. Type
3	2
4	3
5	2
6	2
7	2

- External heat exchanger pump (primary circuit) **on**:
  Temperature differential between the collector temperature sensor and the cylinder temperature sensor > start temperature differential **"ΔTon"**
- Consumer pump (secondary circuit) **on**:
  Temperature differential between the sensor in the external heat exchanger and the cylinder temperature sensor > start temperature differential **"HE ΔTon"**

External heat exchanger (cont.)

Example



2 consumers, hydraulic connection via pumps:
System: 3
Hydraulic type: 2
Consumer 1 is heated via the external heat exchanger.

According to the table on page 99 R3 is the heat exchanger relay.

External heat exchanger (cont.)

Primary pump (collector/ext. heat exchanger) to R3 **on**:
- S1–S2 > **"ΔTon"**
  Delivered condition 8 K (see page 152)

Secondary pump (heat exchanger/consumer 1) to R1 **on**:
- S9–S2 > **"HE ΔTon"**
  Delivered condition 5 K (see page 153)

Secondary pump (ext. heat exchanger/consumer 1) to R1 **off**:
- S9–S2 > **"HE ΔToff"**
  Delivered condition 3 K (see page 153)

Make the following settings at the solar control unit:

1. **Main menu**
   - **"Solar"**
   - **"Options"**
     - **"System"**
       Set value "3".
     - **"Hyd. Type"**
       Set value "2".
     - **"Ext. HE"**
       Set **"Yes"**.
2. **Main menu**
   - **"Solar"**
   - **"Contractor"**
     - **"HE-cylinder"**
       Set value "1".
     - **"Sen.HE.flow"**
       Set value "9".
3. **Main menu**
   - **"Solar"**
   - **"Setting values"**
     - **"HE ΔTon"/"HE ΔToff"**
       Set a value.

Version 2

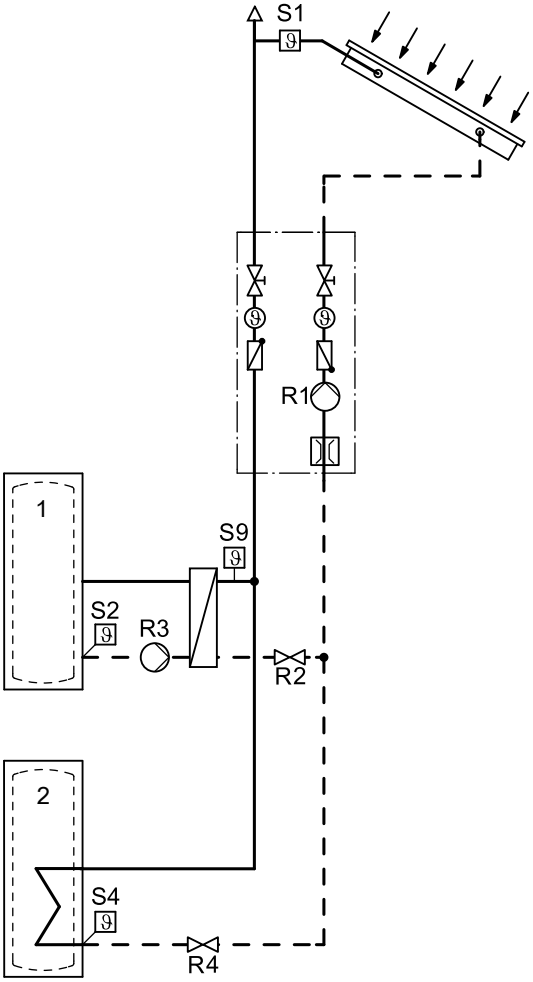
System	Hyd. Type
1	1
2	1, 2
3	1, 3
4	1, 2, 4
5	1
6	1, 3
7	1

- Pump corresponding collector array (primary circuit) **on** and valve for consumer to be heated **open**:
  Temperature differential between the collector temperature sensor and the cylinder temperature sensor > start temperature differential **"ΔTon"**
- Pump external heat exchanger (secondary circuit) **on**:

External heat exchanger (cont.)

Temperature differential between the sensor in the external heat exchanger and the cylinder temperature sensor > start temperature differential **"HE ΔTon"**

Example



5414 620 GB

External heat exchanger (cont.)

2 consumers, hydraulic connection via valves:
System: 3
Hydraulic type: 3
Consumer 1 is heated via the external heat exchanger.
According to the table on page 100 R3 is the heat exchanger relay.

Primary pump (collector/ext. heat exchanger) to R1 **on** and valve to R2 **open**:
- S1–S2 > **"ΔTon"**
  Delivered condition 8 K (see page 152)

Secondary pump (heat exchanger/consumer 1) to R3 **on**:
- S9–S2 > **"HE ΔTon"**
  Delivered condition 5 K (see page 153)

Secondary pump (ext. heat exchanger/ consumer 1) to R3 **off**:
- S9–S2 > **"HE ΔToff"**
  Delivered condition 3 K (see page 153)

Make the following settings at the solar control unit:

1. **Main menu**
   - **"Solar"**
   - **"Options"**
     – **"System"**
       Set value "3".
     – **"Hyd. Type"**
       Set value "3".
     – **"Ext. HE"**
       Set **"Yes"**.

2. **Main menu**
   - **"Solar"**
   - **"Contractor"**
     – **"HE-cylinder"**
       Set value "1".
     – **"Sen.HE.flow"**
       Set value "9".

3. **Main menu**
   - **"Solar"**
   - **"Setting values"**
     – **"HE ΔTon"/"HE ΔToff"**
       Set a value.

Cooling function

- This function can only be activated for system **1 and 2**.
- Solar circuit pump and relay R3 **on**: When the set temperature **"Tcyl set"** has been reached and the start temperature differential **"ΔTon"** is exceeded.
- Solar circuit pump and relay R3 **off**: When the selected stop temperature differential **"ΔToff"** is not reached.

Make the following settings at the solar control unit:

Main menu
- **"Solar"**
- **"Options"**
  – **"Cooling fct."**
    Set **"Yes"**.

5414 620 GB

Interval function

- Activation of this function in systems with unfavourably located collector temperature sensor. Consequently delays in capturing the collector temperature are prevented.
- The solar circuit pump can be switched ON for a set period in a freely selectable interval.
  Delivered condition:
  The solar circuit pump is switched ON from 07:00 (**"Int ON"**) to 19.00 (**"Int OFF"**) h every 30 min (**"Interval"**) for 30 s (**"Int time"**).
  This function is **disabled** from 19:00 to 07:00 h.

Note
This function will be suppressed if the collector temperature sensor is faulty or the collector shutdown temperature ***"Tcolemoff"*** *has been reached (see page 154).*

Make the following settings at the solar control unit:

1. **Main menu**
   - **"Solar"**
   - **"Options"**
     - **"Col.interv."**
       Set **"Yes"**.

2. **Main menu**
   - **"Solar"**
   - **"Contractor"**
     - **"Int time"**
       Set the runtime for the solar circuit pump in the selected interval.
     - **"Int ON"**
       Set the time when the function should start.
     - **"Int OFF"**
       Set the time when the function should stop.

3. **Main menu**
   - **"Solar"**
   - **"Setting values"**
     - **"Interval"**
       Interval between starting and stopping the solar circuit pump.

Collector cooling function

- Solar circuit pump **off**:
  When reaching the selected set temperature **"Tcyl set"**.
- The solar circuit pump will **start** long enough to enable this temperature to fall by 5 K, if the collector temperature rises to the selected maximum collector temperature **"Tcolmax"**. The cylinder temperature can then rise further, but only up to 90 °C.
- You can select the consumer to which the collector cooling function applies. Delivered condition: This function affects all consumers.

Note
Ensure the intrinsic safety of the solar thermal system by accurately sizing the diaphragm expansion vessel, even if the collector temperature continues to rise after the system has reached all limit temperatures.
*The solar circuit pump will be locked out or stopped in case of stagnation or when the stop temperature **"Tcolemoff"** (see page 118) is reached. This prevents a thermal overload of the connected components.*

Make the following settings at the solar control unit:

1. **Main menu**
   - **"Solar"**
   - **"Options"**
     – **"Col.cool.fct"**
     Set **"Yes"**.

2. **Main menu**
   - **"Solar"**
   - **"Setting values"**
     – **"Tcolmax"**
     Set a value.

3. **Main menu**
   - **"Solar"**
   - **"Contractor"**
     – **"Col.cool.cyl"**
     Select consumers.

Reverse cooling function

- Activating this function is only appropriate if the collector cooling function has been enabled.
- The collector cooling function leaves the solar circuit pump switched ON when the set temperature **"Tcyl set"** has been reached, so as to prevent the collector from overheating.
- In the evening, the solar circuit pump will run on for as long as required to cool the consumer via the collector and the pipework down to the selected set temperature **"Tcyl set"**.

Note
Ensure the intrinsic safety of the solar thermal system by accurately sizing the diaphragm expansion vessel, even if the collector temperature continues to rise after the system has reached all limit temperatures.
*The solar circuit pump will be locked out or stopped in case of stagnation or when the stop temperature **"Tcolemoff"** (see page 118) is reached. This prevents a thermal overload of the connected components.*

Make the following settings at the solar control unit:

Main menu
- **"Solar"**
- **"Options"**
  – **"Ret.cool.fct"**
    Set **"Yes"**.

Frost protection function

- To prevent collector damage.
- Activate only when using water as heat transfer medium.
- Solar circuit pump **on**:
  Collector temperature **"Tcol"** ≤ +4 °C.
- Solar circuit pump **off**:
  Collector temperature **"Tcol"** ≥ +5 °C.

Make the following settings at the solar control unit:

Main menu
- **"Solar"**
- **"Options"**
  – **"Frost prot."**
    Set **"Yes"**.

Target temperature

- Constant collector temperature through speed control subject to the set temperature **"Tcolset"**.
- The speed control will no longer be influenced by the differential temperature control when this function is activated.

Make the following settings at the solar control unit:

1. **Main menu**
   - **"Solar"**
   - **"Options"**
     - **"Target temp."**
       Set **"Yes"**.
2. **Main menu**
   - **"Solar"**
   - **"Setting values"**
     - **"Tcolset"**
       Set a value.

Parallel relay

In parallel to the relay that switches the circulation pump of a solar consumer, relays R5 or R6 are switched, for example for switching a diverter valve (subject to the selected system and hydraulic type; see from page 94).

Make the following settings at the solar control unit:

Main menu
- **"Solar"**
- **"Options"**
  - **"Par. relay"**
    Set **"Yes"**.

Booster suppression

Systems with Vitotronic control units and KM BUS

- Function enabled:
  - The consumer is heated by the solar thermal system.
  - Connection of the KM BUS to the solar control unit and the boiler control unit.
- Default a third set DHW temperature (value must be **below** the first set DHW temperature) at the boiler control unit via coding address "67".
- The consumer will only be heated by the boiler, if the third set DHW temperature cannot be achieved by the solar thermal system.

1. Possibly replace the PCB in the boiler control unit (see table on page 167).

2. Connect the KM BUS at input 145 in the solar thermal system (see page 68).

3. Default third set DHW temperature.

Installation and service instructions; boiler control unit

4. Make the following settings at the solar control unit:

Main menu
- **"Solar"**
- **"Options"**
  - **"Heat.interr."**
    Set **"Yes"**.

5. Select the consumer (delivered condition 1) subject to which consumer this function should affect:

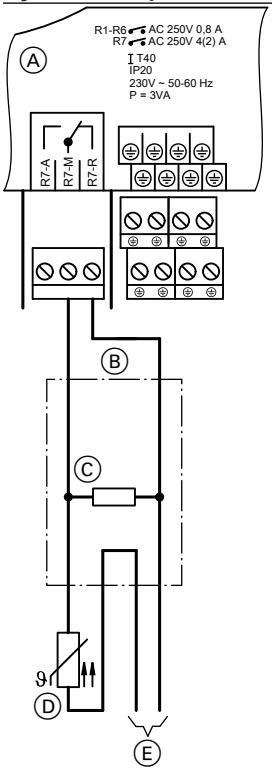
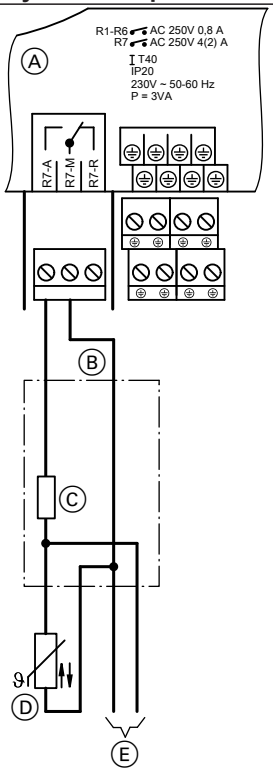
Main menu
- **"Solar"**
- **"Contractor"**
  - **"Suppr.heat cyl"**
    Set value "1" to "4".

Booster suppression (cont.)

Systems with additional Viessmann control units

- Function enabled:
  The consumer is heated by the solar thermal system.
- A resistor simulates an actual DHW temperature that is approx. 10 K higher (for connections, see the following table).
- The consumer will only be heated by the boiler, if the set DHW temperature cannot be achieved by the solar thermal system.

Booster suppression (cont.)

Cylinder temperature sensor as PTC	Cylinder temperature sensor as NTC
	
Ⓒ Resistor 20 Ω, 0.25 W (on-site)	Ⓒ Resistor 10 kΩ, 0.25 W (on-site)

Ⓐ Solar control unit wiring chamber
Ⓑ Junction box (on site)
Ⓔ To the boiler control unit; connection for cylinder temperature sensor
Ⓓ Cylinder temperature sensor of the boiler control unit

Booster suppression (cont.)

Make the following settings at the solar control unit:

1. **Main menu**
   - ■ **"Solar"**
   - ■ **"Options"**
     - – **"Heat.interr."**
       Set **"Yes"**.

2. Select the consumer (delivered condition 1) subject to which consumer this function should affect:

   Main menu
   - ■ **"Solar"**
   - ■ **"Contractor"**
     - – **"Suppr.heat cyl"**
       Set value "1" to "4".

Cylinder 2 (to 4) ON

With this function a consumer can be connected for solar heating in systems with several consumers (e.g. DHW cylinders or swimming pool).

Please note
Break or short circuit of the respective temperature sensor **will no longer be** signalled.

Make the following settings at the solar control unit:

Main menu
- ■ **"Solar"**
- ■ **"Options"**
  - – **"Sp2on"** etc.
    Delivered condition **"Yes"**.

Utilisation of excess heat

A selected consumer will only be heated if all other consumers have reached their set value **"Tcyl set"**. The selected consumer will not be heated in cyclical operation.
This function can only be used for systems 3 to 7.

Make the following settings at the solar control unit:

1. **Main menu**
   - ■ **"Solar"**
   - ■ **"Options"**
     - – **"Overheat"**.
       Set **"Yes"**.

2. **Main menu**
   - ■ **"Solar"**
   - ■ **"Setting values"**
     - – **"Overhtcyl"**
       Set value 1 to 4.

Minimum collector temperature limit

Minimum start temperature **"TColmin"** that must be exceeded before the solar circuit pump can start. This prevents the pump starting too frequently. The collector array will be blocked if this temperature is not achieved.

Make the following settings at the solar control unit:

Main menu
- **"Solar"**
- **"Contractor"**
  - **"TColmin"**
    Set a value.

Cyclical heating

- If the consumer cannot be heated with priority, the next consumer in line will be heated for an adjustable cycle time **"t-circ."**.
- After this time has expired, the solar control unit checks the rise of the collector temperature during the cyclical pause time **"t-stop"**.
  If the value **"ΔT Col"** is reached, **"t-stop"** is set to zero and starts again.
- As soon as the start conditions for the consumer with priority have been met, that consumer will be heated again. Otherwise, the next-in-line consumers will continue to be heated.
- Once the consumer with priority has reached its set temperature **"Tcyl set"**, it will no longer be taken into consideration for cyclical heating.

Make the following settings at the solar control unit:

Main menu
- **"Solar"**
- **"Contractor"**
  - **"t-stop"**
    Set a value.
  - **"t-circ."**
    Set a value.
  - **"ΔT Col"**
    Set a value.

When the consumers have reached their set value **"Tcyl set"**, heating to a higher value **"Tcyl2 set"** can continue. This function can be activated separately for each consumer.

Make the following settings at the solar control unit:

1. **Main menu**
   - **"Solar"**
   - **"Contractor"**
     - **"Cyl set"**
       Select the consumer that this function should affect.
       Set **"Yes"**.

Cyclical heating (cont.)

2. **Main menu**
   - **"Solar"**
   - **"Setting values"**
     – **"Tcyl2 set 1"** to **"Tcyl2 set 4"**
     Delivered condition 60 °C
     Set a value.

Additional function for DHW heating

Systems with Vitotronic control units and KM BUS

- Connection of the transfer pump to R3 or R5 (subject to the selected system and hydraulic type, see from page 94).
- Signal for starting the transfer pump via the KM BUS of the boiler control unit. This also heats the lower area of the DHW cylinder to the required temperature.

1. Possibly replace the PCB in the boiler control unit (see table on page 167).

2. Connect the KM BUS at input 145 in the solar thermal system (see page 68).

3. Encode the second set DHW temperature at the boiler control unit.
   DHW will be heated to that temperature if this function is activated.

   Installation and service instructions; boiler control unit

4. Adjust the fourth DHW phase at the boiler control unit.
   During this time, DHW will be heated to the second set value if this function is activated.

   Operating instructions, boiler control unit

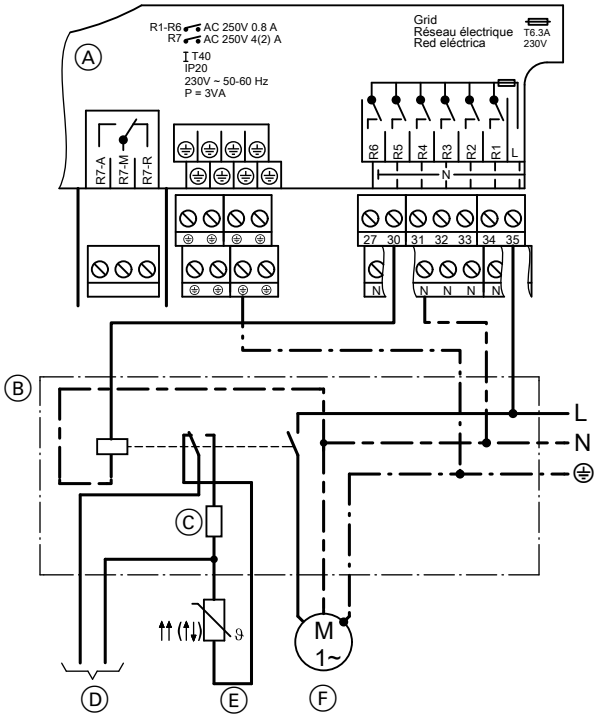
5. Make the following setting at the solar control unit:

   Main menu
   - **"System"**
   - **"Options"**
     – **"Add. fct."**
     Set **"Yes"**.

Additional function for DHW heating (cont.)

Systems with additional Viessmann control units

- Connection of the transfer pump to R3 or R5 (subject to the selected system and hydraulic type, see from page 94).
- A resistor simulates a DHW temperature of approx. 35 °C to the boiler control unit.



Ⓐ Wiring chamber of the solar control unit
Ⓑ Contactor relay
Ⓒ Resistor (on site):
PTC: 560 Ω
NTC: 8.2 kΩ
Ⓓ To the boiler control unit
Ⓔ Cylinder temperature sensor of the boiler control unit
Ⓕ Transfer pump

Additional function for DHW heating (cont.)

Make the following settings at the solar control unit:

1. **Main menu**
   - **"System"**
   - **"Options"**
     - **"Add. fct."**
       Set **"Yes"**.

2. Select the appropriate sensor for capturing the temperature (delivered condition S2) subject to which consumer this function should affect:

   Main menu
   - **"System"**
   - **"Contractor"**
     - **"Sen. add.fct."**
       Set value "1" to "12".

3. The transfer pump starts at an adjustable time **"t-start"** (delivered condition 17:00 h), if the consumer has not reached 60 ºC at least once per day.

   Main menu
   - **"System"**
   - **"Setting values"**
     - **"t-start"**
       Delivered condition 17:00 h
       Set the start of the additional function.

Cylinder heating

- To achieve the heating of a consumer within a specific range, the sensors for functions **"Thermost. 3"** and **"Thermost. 4"** (in the delivered condition S5 and S6) are required. These may be switched to sensors that are already in use (see page 161).
- Reference parameters are the start temperature **"Th3on"** and the stop temperature **"Th3off"**.
- Relay R6 **on**:
  When **"Th3on"** is not reached at either sensor.
- Relay R6 **off**:
  When **"Th3off"** is exceeded at both sensors.
- In addition **"Timer switch 2"** (see page 159) can be activated for this function.

Make the following settings at the solar control unit:

1. **Main menu**
   - **"System"**
   - **"Options"**
     - **"DHWcyl.load."**
       Set **"Yes"**.

2. **Main menu**
   - **"System"**
   - **"Contractor"**
     - **"Sen.Th3"**
       Delivered condition 5
       Select sensor.
     - **"Sen.Th4"**
       Delivered condition 6
       Select sensor.

Cylinder heating (cont.)

3. **Main menu**
   - **"System"**
   - **"Setting values"**
     - **"Th3on"**
       Delivered condition 40 °C
       Set a value.
     - **"Th3off"**
       Delivered condition 45 °C
       Set a value.

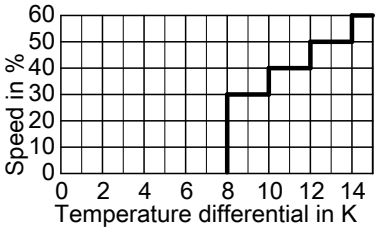
Speed control

The speed control can only be enabled for outputs R1 to R4.
If variable speed control is to be enabled for pumps connected to these outputs, these pumps must **not** have their own speed control. Set multi-stage pumps to the required stage.

Note
*When using pumps with their own variable speed control, set **"On/Off"** for **"Control"**.*

When the start temperature differential **"ΔTon"** has been exceeded for the respective pump, that pump will be started at the minimum speed.
If the temperature differential rises to **"ΔTset"** (differential temperature for the start of the speed control; can only be activated for the collector circuits), then the speed is increased by 10% with every rise by the value selected in **"Rise"**.

Example:
Speed control of the solar circuit pump at relay R1



Values in the delivered condition
ΔT1on =8 K
ΔT1off =4 K
ΔT1set =10 K
Rise 2 K

Make the following settings at the solar control unit:

1. **Main menu**
   - **"Solar"**
   - **"Setting values"**
     - **"ΔTon"**
       Set a value.
     - **"ΔToff"**
       Set a value.
     - **"ΔTset"**
       Set a value.

Speed control (cont.)

2. **Main menu**
   - ■ **"Solar"**
   - ■ **"Contractor"**
   - – **"Control unit"**
   - – **"Rise"**
     Set a value.

Activating speed control

Make the following settings at the solar control unit:

Main menu
- ■ **"Contractor"**
- ■ **"Outputs"**
  - – **"Control"**
    Set the required value (see the following table).

Pumps	Parameter "Control"
Standard solar circuit pumps	
■ Without individual speed control (with integral auxiliary capacitor)	**"Pulse"**
■ With individual speed control	**"ON/OFF"**
High efficiency pumps	**"ON/OFF"**
Pumps with PWM input ***Note*** *Use only **solar** pumps, **not** heating circuit pumps.*	
■ WILO pump	**"PWM A"**
■ GRUNDFOS pump	**"PWM B"**

Changing the minimum speed

Make the following settings at the solar control unit:

Main menu
- ■ **"Contractor"**
- ■ **"Outputs"**
  - – **"Min speed"**
    Select the corresponding relay and set the value.

Central fault message — signalling relay

The zero volt output R7 can, for example, be used as central fault message output (see page 73) (see also tables from page 94).
The relay is switched ON if a fault is recognised.

Make the following settings at the solar control unit:

Main menu
- **"Contractor"**
  - **"Signal relay"**
    Set **"Yes"**.

Heat statement

- Two integral heat meters (WMZ).
- Heat statement possible with or without flow meter.
- Accessories: Heat meter extension set with flow meter.

Heat statement (cont.)

Statement without flow meter

- Statement:
  As an estimate through the differential between the flow and return temperature and the set throughput (see the collector service instructions).
- Sensor inputs S1 and S10 to S12 are provided in the delivered condition for this purpose.
  Should the flow temperature sensor have to be located at a point where temperatures in excess of 95 °C could occur, **always** connect it at S1 or S9 (**NTC sensor with 20 kΩ)** (see also page 69).

  Note
  Sensors that are already installed may be used.
  These must be switched over (see page 161).

- The statement will be calculated if the output set in "**Relay**" (see the following section) is activated.

Example

Use the pump on R1 and the sensors S1 and S2 for the statement.

Make the following settings at the solar control unit:

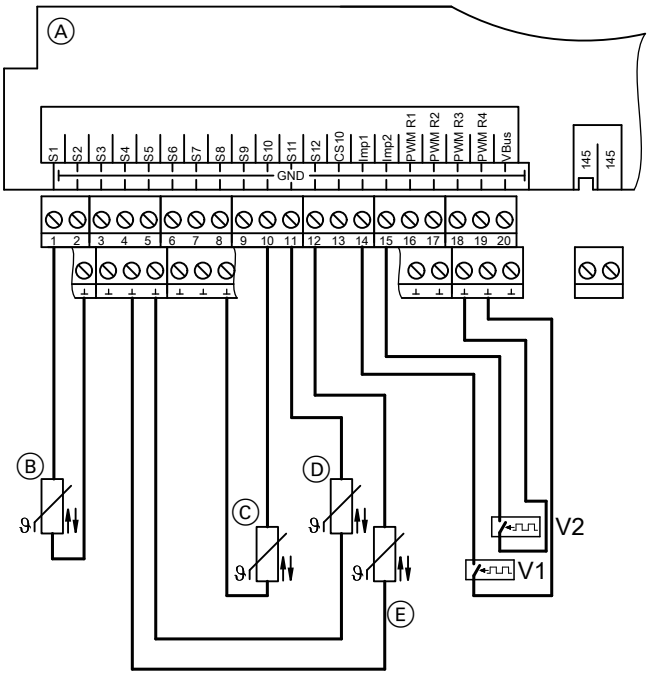
1. **Main menu**
   - **"HM"**
   - **"Options"**
     - **"HM 1"** or **"HM 2"**
       Set **"Yes"**.
2. **Main menu**
   - **"HM"**
   - **"HM 1"** or **"HM 2"**
   - **"Contractor"**
     - **"Sen. Flow"**
       Set value "1" for sensor S1.
     - **"Sen. Return"**
       Set value "2" for sensor S2.
     - **"Frostprot.type"**
       Set the value for the heat transfer medium selected.
     - **"Frost protection"**
       Select the mixing ratio of the heat transfer medium.
     - **"Flow transm"**
       Select **"No"**.
     - **"Throughput"**
       Set a value in l/min.
       "Relay"
       Set value "1".

Note
*To scan the throughput volume in menu **"Manual mode"** for the responding actuator (in the example for relay 1) select **"On"**. Scan the value at the throughput display of the Solar-Divicon.*

Heat statement (cont.)

Statement with flow meter

Connection



Ⓐ Wiring chamber of the solar control unit
Ⓑ Flow temperature sensor WMZ1 (collector temperature sensor)
Ⓒ Return temperature sensor WMZ1
V1 Flow meter WMZ1
Ⓓ Flow temperature sensor WMZ2
Ⓔ Return temperature sensor WMZ2
V2 Flow meter WMZ2

Heat statement (cont.)

- Statement:
  Through determining the temperature differential between the flow and return temperature and the throughput captured by the flow meter.
- Sensor inputs S1 and S10 to S12 are provided in the delivered condition for this purpose.
  Should the flow temperature sensor have to be located at a point where temperatures in excess of 90 °C could occur, **always** connect it at S1 or S9 (**NTC sensor with 20 kΩ)** (see also page 69).

  Note
  Sensors that are already installed may be used.
  These must be switched over (see page 161).

Make the following settings at the solar control unit:

1. **Main menu**
   - **"HM"**
   - **"Options"**
     – **"HM 1"** or **"HM 2"**
       Set **"Yes"**.

2. **Main menu**
   - **"HM"**
   - **"HM 1"** or **"HM 2"**
   - **"Contractor"**
     – **"Sen. Flow"**
       Select the sensor to be used (S1 to S12).
     – **"Sen. Return"**
       Select the sensor to be used (S1 to S12).
     – **"Frostprot.type"**
       Set the value for the heat transfer medium selected.
     – **"Frost protection"**
       Select the mixing ratio of the heat transfer medium.
     – **"Flow transm"**
       Set **"Yes"**.
     – **"Vol./Imp."**
       Delivered condition 1 l/Imp
       Set the pulse rate suitable for the flow meter (see the following table).

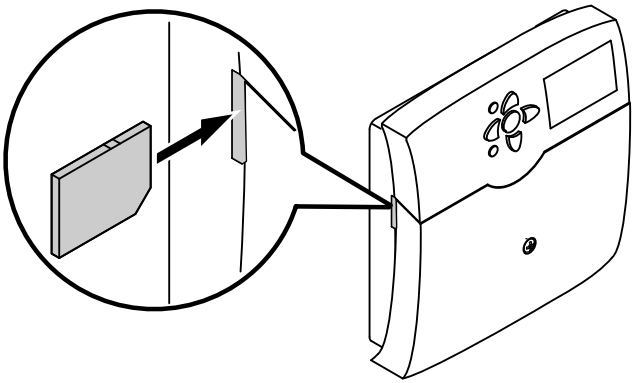
Flow meter		**06**	**15**	**25**	**35**	**60**
Pulse rate	l/imp	1	10	25	35	60
Standard flow rate	m^3/h	0.6	1.5	2.5	3.5	6.0

SD module

- To record the operating values of the solar thermal system.
- Saving the values to the module in a text file. This may, for example, be opened in a tabular calculation program. The values can therefore also be visualised
- SD module: Storage capacity ≤ 2 GB, file system FAT16

Note
Never use SD-HD modules.

Start recording



1. Insert SD module.

2. Make the following settings at the solar control unit:

Main menu
- **"SD module"**
  - Set **"Yes"**.
  - **"Interval"**
    Set the required recording intervals.
  - **"Linear log"**
    Select **"Yes"**/**"No"** (see the following table).

SD module (cont.)

Parameter "Linear log"	
No (delivered condition): When the memory reaches its capacity limit, the oldest data will be overwritten (ring buffer). Recording continues.	Yes: Recording stops when the capacity limit has been reached. The display shows **"card full"**.

Terminating writing

1. Make the following setting at the solar control unit:

   Main menu
   ■ **"SD module"**
   – **"Safely rem card"**.

2. After the display **"Safely rem card"** remove the module from the solar control unit.

Formatting the SD module

Make the following setting at the solar control unit:

Main menu
■ **"SD module"**
– **"Format"**.
"Format" is displayed whilst the process runs.

The module content is deleted and the module is formatted with the FAT16 file system.

Possible displays

Main menu
■ **"SD module"**

"SD module"	Explanation
No module	No module has been inserted or the module is not recognised.
Record	Data recording active.
Time rem	Number of recording days for which the module still offers enough capacity.

SD module (cont.)

Messages

Messages that are only displayed if the solar control unit displays **"!SD-Card Error"** or **"SD Error"** in case the system has developed a fault (see page 89).

Main menu
- **"Messages"**
  - **"!SD-Card Error"/"SD Error"**.

"Messages"	Cause	Remedy
!File system	The inserted module is not formatted with the FAT16 file system.	Format the SD module.
! Incorrect card	Incorrect module type inserted or Memory capacity > 2 GB.	Never insert SD-HD modules. Insert module with memory capacity ≤ 2 GB.
-! Write fault	Error during writing to the module.	Replace module.
! Write protect	The module is write protected.	Disable the write protection of the module.

Relay kick

The pumps/valves are started at an adjustable time for 10 s to prevent them from seizing up.

Make the following settings at the solar control unit:

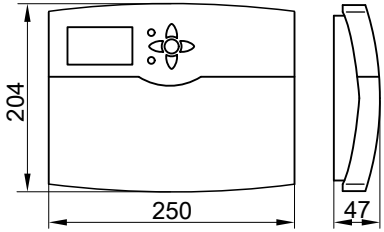
Main menu
- **"Contractor"**
  - **"Outputs"**
  - **"Relay kick"**
    Set **"Yes"**.
  - **"Time"**
    Select the time for the relay kick.

Parts list

When ordering spare parts
Quote the part and serial no. (see type plate) and the position no. of the required part (as per this parts list).
Obtain standard parts from your local supplier.

Parts
010 Collector temperature sensor
020 Cylinder temperature sensor
030 Strain relief pack and fuse
040 Fuse, 6.3 A (slow) (5 pce)
050 Installation and service instructions
060 Operating instructions

Specification



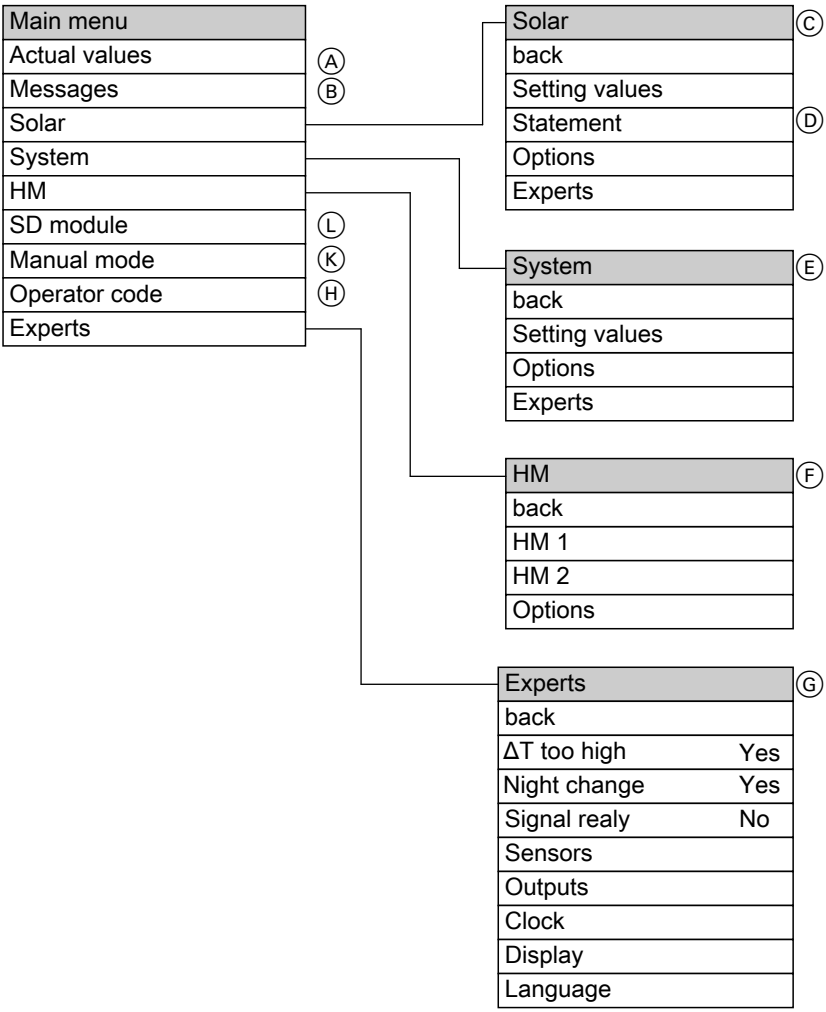
Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	6A
Power consumption	6 W (in standby mode 0.9 W)
Protection class	II
Protection	IP 20 D to EN 60529, ensure through design/installation
Function	Type 1 B to EN 60730-1
Permiss. ambient temperature	
■ during operation	0 to +40 °C Installation in living spaces or boiler rooms (standard ambient conditions)
■ during storage and transport	–20 to +65 °C

Rated relay output load breaking capacity at 230 V~

■ Semi-conductor relay 1 to 6	0.8 A
■ Relay 7	4 (2) A~
■ Total	max. 6 A

5414 620 GB

Menu structure overview



Ⓐ See page 85.
Ⓑ See page 87, 89 and 147.
Ⓒ See from page 151.
Ⓓ See page 86.
Ⓔ See from page 158.
Ⓕ See from page 163.
Ⓖ See from page 164.
Ⓗ See page 80.
Ⓚ See page 84.
Ⓛ See page 164.

5414 620 GB

Overview of system parameters

The parameter display depends on the system equipment level.

Menu "Solar"

Setting values				
Solar setting:	**Description**	**Delivered condition**	**Setting range**	**Set value**
Tcylset	Set temperature consumer 1 (see page 117)	60 °C	4 to 90 °C	
Tcyl set1	At Cyl set = **"Yes"**: Set temperature 1 (see page 135)	60 °C	4 to 90 °C	
Tcyl set2	At Cyl set = **"Yes"**: Set temperature 2 (see page 135)	60 °C	4 to 90 °C	
Tcyl2 set	Set temperature consumer 2	60 °C	4 to 90 °C	
Tcyl2 set 1	At Cyl set = **"Yes"**: Set temperature 1 (see page 135)	60 °C	4 to 90 °C	
Tcyl2 set 2	At Cyl set = **"Yes"**: Set temperature 2 (see page 135)	60 °C	4 to 90 °C	
Tcyl3 set	Set temperature consumer 3	60 °C	4 to 90 °C	
Tcyl3 set 1	At Cyl set = **"Yes"**: Set temperature 1 (see page 135)	60 °C	4 to 90 °C	
Tcyl3 set 2	At Cyl set = **"Yes"**: Set temperature 2 (see page 135)	60 °C	4 to 90 °C	
Tcyl4 set	Set temperature consumer 4	60 °C	4 to 90 °C	
Tcyl4 set 1	At Cyl set = **"Yes"**: Set temperature 1 (see page 135)	60 °C	4 to 90 °C	
Tcyl4 set 2	At Cyl set = **"Yes"**: Set temperature 2 (see page 135)	60 °C	4 to 90 °C	

Overview of system parameters (cont.)

Setting values				
Solar setting:	**Description**	**Delivered condition**	**Setting range**	**Set value**
ΔTon	Start temperature differential for solar circuit pump*4	8 K	1.5 to 20 K	
ΔToff	Stop temperature differential for the solar circuit pump*5	4 K	1 to 19.5 K	
ΔTset	Differential temperature for the start of speed regulation (see page 139)	10 K	2 to 30 K	
ΔT2on	Start temperature differential for consumer 2*4	8 K	1.5 to 20 K	
ΔT2off	Stop temperature differential for consumer 2*5	4 K	1 to 19.5 K	
ΔT2set	Differential temperature for the start of speed regulation (see page 139)	10 K	2 to 30 K	
ΔT3on	Start temperature differential for consumer 3*4	8 K	1.5 to 20 K	
ΔT3off	Stop temperature differential for consumer 3*5	4 K	1 to 19.5 K	
ΔT3set	Differential temperature for the start of speed regulation (see page 139)	10 K	2 to 30 K	
ΔT4on	Start temperature differential for consumer 4*4	8 K	1.5 to 20 K	
ΔT4off	Stop temperature differential for consumer 4*5	4K	1 to 19.5 K	

*4 ***"ΔTon"*** *can be at least 0.5 K above* ***"ΔToff"****.*
*5 ***"ΔToff"*** *can be at least 0.5 K below* ***"ΔTon"****.*

5414 620 GB

Overview of system parameters (cont.)

Setting values				
Solar setting:	**Description**	**Delivered condition**	**Setting range**	**Set value**
ΔT4set	Differential temperature for the start of speed regulation (see page 139)	10 K	2 to 30 K	
Surplus cyl	Consumer for heat transfer	1	1 to 4	
Priority Cyl1	Sequence in which the consumers are to be heated up (see page 117)	1	Subject to the number of consumers from 1 to 4	
Priority Cyl2		2		
Priority Cyl3		3		
Priority Cyl4		4		
HE ΔTon	Start temperature differential for the secondary pump of the ext. heat exchanger*4 (see page 124)	5 K	1 to 19.5 K	
HE ΔToff	Stop temperature differential for the secondary pump of the ext. heat exchanger*5 (see page 124)	3 K	1.5 to 20 K	
SC Byp.	Insolation threshold*6 (See page 120 and 121).	200 W/m²	100 to 500 W/m²	
Interval	Interval for interval function (see page 127)	30 min	1 to 60 min	
Tcolset	Set collector temperature in conjunction with activating the function **"Target temp."** (see page 130)	65 °C	20 to 110 °C	

*4 ***"ΔTon"*** *can be at least 0.5 K above* ***"ΔToff"****.*
*5 ***"ΔToff"*** *can be at least 0.5 K below* ***"ΔTon"****.*
6 Vitosol-F: 210 W/m²
Vitosol -T: 130 W/m²

5414 620 GB

Overview of system parameters (cont.)

Setting values				
Solar setting:	**Description**	**Delivered condition**	**Setting range**	**Set value**
Tcolmax	Maximum collector temperature[*7] (see page 128)	110 °C	80 to 160 °C	
Tcolemoff	Collector shutdown temperature[*7] (see page 118) ***Note*** *This function is disabled at setting 200 °C.*	130 °C	110 to 200 °C	

Options			
Solar options:	**Description**	**Delivered condition**	**Set value**
System	System settings (see page 94)	1 (1 to 7)	
Hyd. Type	Selecting the hydraulic type (see the corresponding system)	1 (1 to 4)	
Bypass	Bypass circuit with collector temperature and bypass sensor (see page 119)	No	
Ext. HE	Ext. heat exchanger connected (see page 122)	No	
Cooling fct.	Cooling function (see page 126)	No	
Col.interv.	Interval function (see page 127)	No	
Col.cool.fct	Collector cooling function (see page 128)	No	
Ret.cool.fct	Reverse cooling function (see page 129)	No	
Frost prot.	Frost protection (see page 129)	No	
Target temp.	Target temperature (see page 130)	No	
Par. Relay	Parallel relay (see page 130)	No	
SC bypass	Bypass circuit with solar cell (see page 120 and 121)	No	

[*7] *Never set the maximum collector temperature higher than the collector shutdown temperature. Both values are mutually interlocked to a differential of at least 10 K.*

Overview of system parameters (cont.)

Options			
Solar options:	**Description**	**Delivered condition**	**Set value**
Heat.interr.	Suppression of reheating by the boiler (see page 131)	No	
Cyl.2 on	Cylinder 2 on (see page 134)	Yes	
Cyl.3 on	Cylinder 3 on (see page 134)	Yes	
Cyl.4 on	Cylinder 4 on (see page 134)	Yes	
Overheat	Only in conjunction with systems 3 to 7: Heat transfer if **"Tcyl set"** has been reached.	No	

Contractor				
Solar contractor:	**Description**	**Delivered condition**	**Setting range**	**Set value**
TColmin	Minimum collector temperature, collector array 1 (see page 135)	10 °C	10 to 90 °C	
TCol2min	Minimum collector temperature, collector array 2 (see page 135)	10 °C	10 to 90 °C	
ΔT-Cylset	Hysteresis for set temperature **"Tcyl set"** (see page 151)	2K	0.5 to 5 K	
ΔTCyl2set	Hysteresis for set temperature**"Tcyl2 set"** (see page 151)	2K	0.5 to 5 K	
ΔTCyl3set	Hysteresis for set temperature**"Tcyl3 set"** (see page 151)	2K	0.5 to 5 K	
ΔTCyl4set	Hysteresis for set temperature**"Tcyl4 set"** (see page 151)	2K	0.5 to 5 K	
Cyl set	Heating to the second set temperature, consumer 1 (see page 135)	No		

Overview of system parameters (cont.)

Contractor				
Solar contractor:	**Description**	**Delivered condition**	**Setting range**	**Set value**
Cyl2 set	Heating to the second set temperature, consumer 2 (see page 135)	No		
Cyl3 set	Heating to the second set temperature, consumer 3 (see page 135)	No		
Cyl4 set	Heating to the second set temperature, consumer 4 (see page 135)	No		
Sen.cyl set	Reference sensor for stopping the solar circuit pump, subject to Tcyl set (no influence on the differential temperature control). For example, one sensor in the upper area of the consumer.	2	1 to 12	
Sen.cyl2 set	See above.	4	1 to 12	
Sen.cyl4 set	See above.	5	1 to 12	
Sen.cyl4 set	See above.	6	1 to 12	
t-stop	Pump run break duration, cycle pause time (see page 135)	2 min	1 to 60 min	
t-circ.	Interruption interval, cyclical heating (see page 135)	15 min	1 to 60 min	
ΔT Col	Collector temperature increase (see page 135)	2 K	1.0 to 10.0 K	

Overview of system parameters (cont.)

Contractor				
Solar contractor:	**Description**	**Delivered condition**	**Setting range**	**Set value**
Int time	In case the interval function has been activated: Time when the solar circuit pump runs according to the selected interval and time frame (see page 127)	30 s	5 to 500 s	
Int ON	In case the interval function has been activated: Start of the interval function (see page 127)	07:00 to 19:00	00:00 to 23:45	
Int OFF	In case the interval function has been activated: End of the interval function (see page 127)	07:00 to 19:00	00:00 to 23:45	
Suppr.heat cyl	In case of activated booster suppression: Consumer to which this function should apply	Cyl.1	1 to 4	
HE-cylinder	Consumer that is to be heated via the external heat exchanger	1	1 to 5 5: all consumers	
Sen.HE.flow VL	Sensor that should be used for the function "Ext. heat exchanger" (see page 122)	3	1 to 12	
Sen. bypass	Sensor that should be used for the bypass function (see page 119)	3	1 to 12	
Bypass	Bypass circuit hydraulics (see page 119 and 121)	Valve	Valve/pump	

Overview of system parameters (cont.)

Contractor				
Solar contractor:	**Description**	**Delivered condition**	**Setting range**	**Set value**
Colmax cyl	You can select the consumer to which the collector cooling function should apply (see page 128)	1, 2, 3, 4	1 to 4	
Control unit	Do not adjust			
HE control	Do not adjust			

Menu "System"

For a description of the function blocks, see page 112.

Setting values				
Sys. setting:	**Description**	**Delivered condition**	**Setting range**	**Set value**
Time	—	—	—	—
Date	—	—	—	
t-start	Start time for the additional function for DHW heating (see page 136)	17:00	00:00 to 23:45	
Th1on	Thermostat start temperature function block 1	40 °C	–40 to 250 °C	
Th1off	Thermostat stop temperature function block 1	45 °C		
Th2on	Thermostat start temperature function block 1	40 °C		
Th2off	Thermostat stop temperature function block 1	45 °C		
ΔT5on	Start temperature differential function block 1	5 K	1.5 to 20 K	
ΔT5off	Stop temperature differential function block 1	3 K	1 to 19.5 K	

Overview of system parameters (cont.)

Setting values				
Sys. setting:	**Description**	**Delivered condition**	**Setting range**	**Set value**
Time switch 1 t1–on t1–off t2–on t2–off t3–on t3–off	Period function block 1	00:00	00:00 to 23:00	
Th3on	Thermostat start temperature function block 2	40 °C	–40 to 250 °C	
Th3off	Thermostat stop temperature function block 2	45 °C		
Th4on	Thermostat start temperature function block 2	40 °C		
Th4off	Thermostat stop temperature function block 2	45 °C		
ΔT6on	Start temperature differential function block 2	5 K	1.5 to 20 K	
ΔT6off	Stop temperature differential function block 2	3 K	1 to 19.5 K	
Time switch 2 t1–on t1–off t2–on t2–off t3–on t3–off	Period function block 2	00:00	00:00 to 23:00	
Th5on	Thermostat start temperature function block 3	40 °C	–40 to 250 °C	
Th5off	Thermostat stop temperature function block 3	45 °C		
Th6on	Thermostat start temperature function block 3	40 °C		
Th6off	Thermostat stop temperature function block 3	45 °C		

Overview of system parameters (cont.)

Setting values				
Sys. setting:	**Description**	**Delivered condition**	**Setting range**	**Set value**
ΔT7on	Start temperature differential function block 3	5 K	1.5 to 20 K	
ΔT7off	Stop temperature differential function block 3	3 K	1 to 19.5 K	
Time switch 3 t1–on t1–off t2–on t2–off t3–on t3–off	Period function block 3	00:00	00:00 to 23:00	

For a description of the function blocks, see page 112.

Options			
Sys. options:	**Description**	**Delivered condition**	**Set value**
Add. fct.	Additional function for DHW heating (see page 136)	No	
DHWcyl.load.	Cylinder heating (see page 138)	No	
Thermost. 1	Thermostat function 1, function block 1	No	
Thermost. 2	Thermostat function 2, function block 1	No	
ΔT Fct5	ΔT5 differential temperature control, function block 1	No	
Time switch 1	Time switch 1, function block 1	No	
Thermost. 3	Thermostat function 3, function block 2	No	
Thermost. 4	Thermostat function 4, function block 2	No	

5414 620 GB

Overview of system parameters (cont.)

Options			
Sys. options:	**Description**	**Delivered condition**	**Set value**
ΔT Fct6	ΔT6 differential temperature control, function block 2	No	
Time switch 2	Time switch 2, function block 2	No	
Thermost. 5	Thermostat function 5, function block 3	No	
Thermost. 6	Thermostat function 6, function block 3	No	
ΔT Fct7	ΔT7 differential temperature control, function block 3	No	
Time switch 3	Time switch 3, function block 3	No	

Reference sensors for the required functions can be determined in the following submenu. All sensors that already have a function in the system are available for this. The sensors are **switched**.

For a description of the function blocks, see page 112.

Contractor				
Sys.contractor:	**Description**	**Delivered condition**	**Setting range**	**Set value**
Sen. add.fct.	Reference sensor for the additional function for DHW heating (see page 136)	2	1 to 12	
Sen.Th1	Reference sensor for thermostat function 1, function block 1	3	1 to 12	
Sen.Th2	Reference sensor for thermostat function 2, function block 1	4	1 to 12	
Sen1 ΔT5Fct	Reference sensor for differential temperature control, function block 1	3	1 to 12	
Sen2 ΔT5Fct	Reference sensor for differential temperature control, function block 1	4	1 to 12	

Overview of system parameters (cont.)

Contractor				
Sys.contractor:	**Description**	**Delivered condition**	**Setting range**	**Set value**
Sen.Th3	Reference sensor for thermostat function 3, function block 2	5	1 to 12	
Sen.Th4	Reference sensor for thermostat function 4, function block 2	6	1 to 12	
Sen1 ΔT6Fct	Reference sensor for differential temperature control, function block 2	5	1 to 12	
Sen2 ΔT6Fct	Reference sensor for differential temperature control, function block 2	6	1 to 12	
Sen.Th5	Reference sensor for thermostat function 5, function block 3	7	1 to 12	
Sen.Th6	Reference sensor for thermostat function 6, function block 3	8	1 to 12	
Sen1 ΔT7Fct	Reference sensor for differential temperature control, function block 3	7	1 to 12	
Sen2 ΔT7Fct	Reference sensor for differential temperature control, function block 3	8	1 to 12	
Control ΔT5 ■ Rise	Pump speed control for the ΔT5 control (ΔTset = 10 K)	 2	 1 to 20	

Overview of system parameters (cont.)

Menu "HM" (heat meter)

Options			
HM options:	**Description**	**Delivered condition**	**Set value**
HM 1	Heat meter with statement calculation (see page 141)	No	
HM 2	Heat meter with statement calculation (see page 141)	No	

For a description of the function, see page 141.

Contractor				
HM 1 contractor:/ HM 2 contractor:	**Description**	**Delivered condition**	**Setting range**	**Set value**
Sens. flow	Flow temperature sensor	1	1 to 12	
Sen. Return	Return temperature sensor	10	1 to 12	
Frostprot.type	0 Water 1 Propylene glycol 2 Ethylene glycol 3 Viessmann heat transfer medium	3	0 to 3	
Frost protection	Will only be displayed if a heat transfer medium that can be mixed has been entered	40 %	20 to 70 %	
Flow transm	If a flow meter is installed	No	—	
Vol./Imp.	Will only be displayed if **"Flow transm"** has been set to **"Yes"**. The throughput captured by the flow meter (see page 143)	1l/Imp	1 to 99 l/Imp.	

Overview of system parameters (cont.)

Contractor				
HM 1 contractor:/ HM 2 contractor:	**Description**	**Delivered condition**	**Setting range**	**Set value**
Throughput	Will only be displayed if **"Flow transm"** has been set to **"No"**: Throughput (see page 142)	5 l	1 to 20 l/min	
Relay	Relay to which the corresponding consumer is connected	1	1 to 7	

Menu "SD module"

SD module:	Description	Delivered condition	Setting range	Set value
Safely rem card	Terminating writing			
Format	Format the SD module			
Interval	Writing interval	20 min	1 to 20 min	
Linear log	Data ring buffer off	No		

Menu "Contractor"

Contractor:	Description	Delivered condition	Setting range	Set value
ΔT too high	See page 89	Yes		
Night change	If gravity results in a recirculation between 23:00 and 05:00 h, a message will be issued (see page 87 and 89)	Yes		
Signal relay	Relay 7 is used as signalling relay in case of faults (see page 141)	No		
Sensors				
■ Solarcell type	ID letter of the solar cell	E	A,B, C, D, E, G, H, J, K	
■ Match solarcells	Only for service personnel!			

5414 620 GB

Overview of system parameters (cont.)

Contractor:	Description	Delivered condition	Setting range	Set value
■ SC offset	Do not adjust			
■ Temp.units	Temperature unit	°C Celsius	°F Fahrenheit	
■ Sensor 1	Sensor matching	0 K	–5 K to 5 K	
■ Sensor 2	Sensor matching	0 K	–5 K to 5 K	
■ Sensor 3	Sensor matching	0 K	–5 K to 5 K	
■ Sensor 4	Sensor matching	0 K	–5 K to 5 K	
■ Sensor 5	Sensor matching	0 K	–5 K to 5 K	
■ Sensor 6	Sensor matching	0 K	–5 K to 5 K	
■ Sensor 7	Sensor matching	0 K	–5 K to 5 K	
■ Sensor 8	Sensor matching	0 K	–5 K to 5 K	
■ Sensor 9	Sensor matching	0 K	–5 K to 5 K	
■ Sensor 10	Sensor matching	0 K	–5 K to 5 K	
■ Sensor 11	Sensor matching	0 K	–5 K to 5 K	
■ Sensor 12	Sensor matching	0 K	–5 K to 5 K	
Outputs				
■ Min speed 1	Minimum speed of the pump at R1	30 %	30 to 100 %	
■ Min speed 2	Minimum speed of the pump at R2	30 %	30 to 100 %	
■ Min speed 3	Minimum speed of the pump at R3	30 %	30 to 100 %	
■ Min speed 4	Minimum speed of the pump at R4	30 %	30 to 100 %	
■ Relay kick	The pumps are started at an adjustable time for 10 s to prevent them from seizing up	No		
■ Time	Time for relay kick			
■ Control 1	See the table on page 69	ON/OFF		
■ Control 2	See the table on page 69	ON/OFF		
■ Control 3	See the table on page 69	ON/OFF		
■ Control 4	See the table on page 69	ON/OFF		
■ VBus	Activating the V BUS	Yes		

Overview of system parameters (cont.)

Contractor:	Description	Delivered condition	Setting range	Set value
Clock				
■ KMBus time	Adopting the time from the boiler control unit via KM BUS	Yes		
■ Auto summer	Automatic changeover summer/wintertime (Only if for KM BUS time **"No"**)	Yes		
■ Time UTC (Time at the zero meridian, i.e. CET less 1 h)	Time for the summer/wintertime changeover (Only if for KM BUS time **"No"**)			
Display				
■ Inverted		White script on a black background	Black script on a white background	
■ Lighting	Strength of the display backlighting	100	50 to 100	
Language	See page 81	—		—

PCBs

Replace the PCB in the stated boiler control units in conjunction with the following functions:
- Suppression of reheating by the boiler
- Auxiliary function for DHW heating, achieved by the solar control unit

PCBs (cont.)

Control unit	**Electronics PCB**
Vitotronic 200, type KW1, **part no. 7450 351, 7450 740**	Part no. 7828 192
Vitotronic 200, type KW2, **part no. 7450 352, 7450 750**	
Vitotronic 300, type KW3, **part no. 7450 353, 7450 760**	
Vitotronic 200, type GW1, **part no. 7143 006**	Part no. 7828 193
Vitotronic 300, type GW2, **Part no. 7143 156**	
Vitotronic 333, type MW1, **Part no. 7143 421**	Part no. 7828 194

Declaration of conformity

We, Viessmann Werke GmbH&Co KG, D-35107 Allendorf, declare as sole responsible body, that the product Vitosolic 200 complies with the following standards:

EN 55 014-1
EN 60 730

In accordance with the following Directives, this product is designated with CE:

2004/108/EC
2006/95/EC

Allendorf, 1 May 2009

Viessmann Werke GmbH&Co KG

pp. Manfred Sommer

Keyword index

A

Activating speed control.....140
Additional function for DHW heating.....136, 160
Adjusting the display.....82
Amount of heat
■ reset.....86
Anti-scalding protection.....7
Applicability.....172
Automatic mode.....79
Automatic operation.....84

B

Booster suppression.....131
Bypass.....118

C

Central fault message.....141
Central fault message facility.....73
Changing the fuse.....93
Changing the minimum speed.....140
Changing the speed.....140
Checking actuators.....84
Checking relays (actuators).....92
Checking sensors.....92
Collector cooling function.....128, 154
Collector emergency stop.....118
Collector temperature sensor.....74
Commissioning.....79
Confirmation of a value input.....79
Controls.....79
Cooling function.....126, 154
Cyclical heating.....135
Cylinder heating.....138
Cylinder priority control.....117
Cylinder temperature limit.....117
Cylinder temperature sensor.....74

D

Declaration of conformity.....168

E

Entering the operator code.....80
Equipotential bonding.....7
External heat exchanger.....122, 154, 163, 164

F

Fault messages.....88
Fitting the solar control unit.....67
Frost protection.....154
Frost protection function.....129
Function blocks.....112
Function description.....94

H

Heat meter extension set.....143
Heat statement.....141
High limit safety cut-out.....71
Hydraulic types.....94

I

Insolation intensity.....85
Insolation threshold.....153
Interval function.....127, 153, 154

L

Language selection.....81

M

Manual mode.....84
Maximum collector temperature limit.....128
Menu
■ Contractor.....164
■ HM (heat meter).....163
■ SD module.....164
■ Solar.....151
■ System.....158
Menu structure.....150
Menu structure overview.....150
Messages.....88
Minimum collector temperature limit 135

5414 620 GB

Keyword index (cont.)

N
Navigation through the menu.....79

O
Overview of electrical connections.....68

P
Parallel relay.....130, 154
Parameter
■ setting.....82
Parts list.....148
Possible pumps.....69
Power supply.....77
Pump kick.....147
Pumps.....69

R
Reference sensors.....112
Relay kick.....147
Relay test.....84
Resetting parameters into their delivered state.....84
Reverse cooling function.....129, 154

S
Scanning
■ Operating states.....85
■ Pump speed.....85
■ Statement values.....85
■ Temperatures.....85
Scanning messages.....87
Scanning operating states.....85
Scanning pump speed.....85
Scanning temperatures.....85
Scanning the hardware version.....87
Scanning the heat yield.....86
Scanning the software version.....87
Scanning the statement.....85
SD module.....145
Selecting the hydraulic type.....82
Selecting the system.....82
Setting pump parameters.....83
Setting the time.....82
Signalling relay.....141
Solar cell.....76
Solar circuit pump.....69
Spare fuse.....93
Speed control.....139
Start and stop temperature for thermostats.....158
Start time for additional function for DHW heating.....158
Summer/wintertime changeover.....166
Suppression of reheating.....155
Switching the control unit ON.....79
Switching the power ON.....79
Switch sensors.....161
System parameters
■ Overview.....151
Systems.....94

T
Target temperature.....130
Temperature sensors.....75
Test values.....85
Time.....166
Time frame for time switch.....159
Time switch.....160
Time via KM BUS.....166

U
Utilisation of excess heat.....134

5414 620 GB

Applicability

Applicable for the Vitosolic 200, type SD4
Part no. 7418 202

Viessmann Werke GmbH&Co KG
D-35107 Allendorf
Telephone: +49 6452 70-0
Fax: +49 6452 70-2780
www.viessmann.com

Viessmann Limited
Hortonwood 30, Telford
Shropshire, TF1 7YP, GB
Telephone: +44 1952 675000
Fax: +44 1952 675040
E-mail: info-uk@viessmann.com

Printed on environmentally friendly, chlorine-free bleached paper

5414 620 GB Subject to technical modifications.